POPULAR Computing WEEKLY

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BRITAIN'S BEST-SELLING MICRO WEEKLY





News Desk

The end of the road for Dragon?

DRAGON Data has called in the receiver

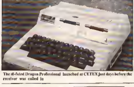
Managing director Brian Moore explained "With the continuing difficulties of establishing profitable trading in the home computer markets in the UK and abroad Dragon Data Ltd has requested its bankers to call in a receiver

"This is despite great efforts in the last 12 months when the management was strengthened, the overheads cut, advisors brought in, several new models developed and further finance provided by the shareholders

The decision to call in the receiver comes just eight months after Prutech organised a £4 5m rescue (*PCW* 8-14 September 1983) The package consisted of £1 25m in new equity £1 25m in loans and a £2m guaranteed overdraft

There have been signs for some time that Dragon has been in trouble most recently with British Home Stores dropping the Dragon 32 and Boots deciding to add the Amstrad and MSX machines to its range

continued on page 5 ▶



The ill-fated Dragon Professional launched at CETEX just days before the receiver was called in

Argus buys out Quicksilva

ARGUS Specialist Publications (ASP) a subsidiary of the giant BET group has taken over Quicksilva The deal which was concluded last week is understood to be worth several million pounds

"Negotiations have been held over eight months, following an approach from the Chief Executive of the Argus group and they reached their conclusion on May 29 at 11 30pm," said Quicksilva managing director Rod Cousens

Co founders and principal shareholders Nick Lambert and John Hollis have now left the company but Quicksilva will retain the first option on their future programs Rod Cousens continues as managing director with ASP chief executive Jim Connell becoming chairman Ron Harris and Mike Dougan of ASP become non-executive directors while Mark Eyles becomes creative design executive

Included in the deal are Software Studios, a wholly owned subsidiary of Quicksilva and the label under which *Games Designer* was launched

continued on page 5 ▶

This Week



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Accuracy
Popular Computing Weekly cannot accept any responsibility for any errors in programs we publish although we will always try our best to make sure programs work.

This Week

Editorial

Dragon burst onto the micro scene two years ago. In modern parlance, it rose without trace. Sadly, it now seems set to disappear the same way.

Dragon was very much the brainchild of Tony Clarke, its former chairman and managing director. While a director of the ailing Mettoy toy firm, he spotted the potential of the home computer market, he persuaded Mettoy to set up Dragon and to fund the development of its first computer — the Dragon 32.

This machine was extremely successful when first launched, particularly since both Acorn and Sinclair were suffering from production problems at the time. However, the post-Christmas slump and delays in producing a successor to the 32 left Dragon in a precarious position.

Prutech mounted a rescue operation in September last year, but Tony Clarke resigned and was replaced by Brian Moore from GEC. Now the wheel has come full circle and barring another last minute rescue, Dragon looks set to follow Jupiter Cantab and Grundy into obscurity.

With market share playing an increasingly important role in the success or otherwise of micro manufacturers, companies such as Oric and Memotech must be nervous about their future prospects. Amstrad and the MSX companies too will have to take a significant slice of the market if they are to avoid Dragon s fate.

Next Thursday

Next week s star game is Dustbin Dan for Commodore 64 by Stuart Myler, catch the fruit before you die of starvation!

Dragon Data

continued from page 1

However, Dragon appeared to have weathered its latest problems with the launch last week of the Dragon Professional — a 6809-based machine with 64K Ram and integral 3½in disc drive. Additional business and MSX machines were also in the offing.

But Brian Moore still hopes to salvage something from the company. "The Dragon management has confidence in its new products and the market opportunities they represent and will be using their best endeavours in helping the receiver to explore ways of continuing trading."

Other companies which produce software and peripherals for the Dragon also hope to continue in business. "It is the blackest day so far for the 6809," said Ted Opyrchal of Compusense. "But whatever happens, we will continue to support the machine for as long as customers want software."

Quicksilva

continued from page 1

last year (*PCW* 15-21 September, 1983) and Quicksilva's US arm, Quicksilva Inc.

Rod Cousens believes that the takeover will help Quicksilva to expand both at home and overseas. "It is an opportunity to speed up Quicksilva's expansion programme and an opportunity to diversify into new technological areas.

John Hollis (left) and Nick Alexander

"We would also anticipate substantial investment overseas in promoting the identity of Quicksilva."

Southampton-based Quicksilva, which was founded in 1981, employs 14 staff and currently has 70 software titles on the market. Another 10 programs are due to be launched on June 14 at The Computer Fair at Earls Court.

Nothing new at CES

THERE was little new on display at the Consumer Electronics Show which opened in Chicago on Sunday.

Commodore showed its +/4 — the renamed 264 — which was first shown at the CES show in Las Vegas in January. Few details were available, but the machine will cost under $300 and will include four built-in software packages — *File Manager*, *Spreadsheet*, *Word Processor* and *Graphics* and a machine code monitor.

Sig Hartmund revealed that the machine would be available in September and said: "The +/4 is a more serious machine — a productivity machine — whereas the 64 is a more generalised computer."

Also on display from Commodore were the sub 1100 16 micro, the SFS 481 fast disc drive and the DPS 1101 letter quality daisy wheel printer.

Sinclair showed the QL, which it will sell mail order for $499, and its flat-screen tv.

JVC demonstrated its MSX micro which was linked up to a video-disc showing a golf simulation, but said it had no plans to release the machine in the US.

The upcoming Olympics made their presence felt on the software scene, with both Hesware and Activision producing athletics based games.

War of the Worlds

CRL has launched its video game version of *War of the Worlds*, based on the music from Jeff Wayne's top-selling album.

The game takes the form of a graphic adventure, in which you control — with the keyboard or joystick — a journalist wandering through the Home Counties after a Martian invasion.

War of the Worlds will be available on Spectrum from June 14, when it will be on show at the Computer Fair at Earls Court, priced at £7.95.

Prestel for BBC

BBC MICRO owners can now take advantage of Prestel with the launch of Acorn's Prestel adaptor.

The adaptor comes complete with a viewdata telecomms Rom and user guide. The adaptor plugs into the RS423 port on the micro and the Type 600 BT telephone socket. The Rom slots into one of the spare sideways Rom sockets inside the computer.

It also has an autodial facility and built in sofware to download telesoftware programs from Micronet 800.

The Prestel adaptor costs £113.85 and is available on mail order from Vector Marketing, London Road, Denington Estate, Wellingborough, Northants.

Spectrum goes public

SPECTRUM Group, leading distributor of computer hardware, software, peripherals and photographic equipment, will be going public on June 19.

Although chairman Michael Stern and managing director Alan Warren only founded the company in 1980, by December 1983 turnover had reached £15m with profits of £1m. Projected profits for the six months ending June 1984 are well over £1.7m.

Much of Spectrum's software distribution goes through its subsidiary Micro Dealer UK, whose own turnover is running at about £4.8m.

After the flotation, Spectrum plan to expand Micro Dealer UK further, and set up a service company for manufacturers, distributors and users.

Printer for Amstrad

AMSTRAD

BY September a dot matrix printer should be available for the Amstrad CPC 464.

The printer, called the DMP 1, will use the standard centronics 7-bit printer interface which will be supplied with the printer.

It runs at up to 50 characters a second with a maximum width of 80 columns. It contains a dot addressable graphics capability and full screen dump facility.

The print is created by a 5 7 character matrix, and it has facilities for both traction and plain paper feed.

Manufactured by Sikosha in Japan, the printer will cost £199.00 and will be available in the same four stores stocking the Amstrad CPC 464 — Boots, Dixons, Comet and Rumbelows.

MSX at CETEX

WELL over 100 electronics companies exhibited at CETEX (Consumer Electronics Trade Exhibition) at Earls Court last week.

Three Japanese companies — JVC, Mitsubishi and Toshiba — had their MSX machines on display, although the micros reaching the UK this autumn will be modified versions.

A number of working Amstrad CPC 464s were on view with running software from Bourne Educational Software. GEC were also displaying the now ill-fated Dragons 32, 64 and the new £700 Professional machine, plus a new range of business software for the latter.

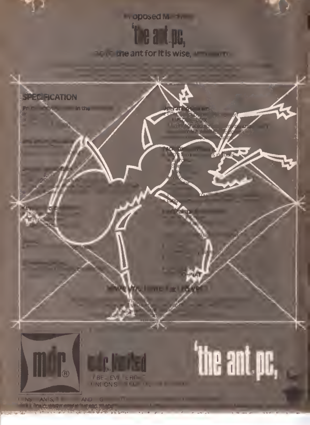
On the software side, Atari were advertising their new range of software, both for the Atari machines and conversions of games such as *Pole Position* for Spectrum, Commodore, BBC and Electron.

At last . . .

ULTIMATE has launched its eagerly awaited program *Sabre Wulf*. Like *Atic Atak*, the program is a mixture of arcade and adventure styles.

Essentially a maze game, you must move through a jungle avoiding wild animals while searching for a map. The *Wulf* of the title is one of the more dangerous animals lurking in the jungle. include Parrots and Fruit Bats.

Sabre Wulf costs £9.95 — previous games have retailed for £5.50. The price move apparently reflects "increased development time".



SPECIFICATION
the ant for it is wise,
'the ant.pc,
mdr®

Letters

Logo plotter

This program will draw out *PCW*'s logo using the *Plot Draw* and *Pt* commands. It shows that you do not need a fancy drawing program to achieve quite accurate drawings.

Martin Peapell
61 Whitworth Road
Swindon
Wilts

Jet set pizewinners

To all *Jet Set Willy* fans we have some very good news. Congratulations to Ross Hofman and Cameron Else of London who have successfully guided Willy around the 60 screen labyrinth, collected all 83 items and deposited the exhausted jet setter into his long-awaited four poster.

Not only did Ross and Cameron beat thousands of other entries to claim their super prizes, but they have also submitted ideas to enhance the game. They didn't particularly like Matthew's sneaky random hazards feature which pulverises you after a visit to the attic, so if you want an easier route and an easier game proceed as follows.

Rewind *Jet Set Willy* tape,
Enter
Merge
Press Play on cassette. Once the first section of program has loaded, * Stop the cassette and
Enter
Clear 32767 Load Code
Start the cassette. After the main part of the program has loaded, * Enter
Poke 60231 0 Poke 42183,11, Poke 59901 82, Poke 56876,4
If you would like to *save* the new version of *Jet Set Willy* prepare a blank tape and enter
Save "Jetset" *Line* 10
Save "JSW" *Code* 32768 32768
If not, to play the new game type *Goto 40*
Remember when saving to change recorder leads.

More good news for 64 owners: the *Jet Set Willy* conversion is almost complete and should be in the shops shortly. This enhanced version includes 64 screens so get to bed early now, in anticipation of days without sleep.

Software Projects
Bear Brand Complex
Allerton Road
Woolton
Liverpool

Block interference

In *PCW*, May 3 and May 24 your correspondents reported problems regarding the loading of tapes caused by EMI (electromagnetic interference). One way of rectifying this problem is to obtain a thin lead sheet (about the size of a cassette player) and earth it by connecting it to the earth pin of the mains. Then place the lead sheet between the offending piece of equipment (usually the tv set) and the cassette player. This blocks the EMI travelling through the air, but not that travelling through interconnecting cables.

Carl Pickin
Levens
Tunstall Road
Knypersley
Stoke-on-Trent

"I'd heard they were dropping out"

QL comments and queries

With reference to your page on the QL, which I find to be rather premature considering the availability (or rather the non availability) of the QL, I have a few comments about the machine.

1) Why call the programming language SuperBasic when it bears no resemblance whatsoever to Basic?
2) Why not make the machine, manufacture a few hundred and then announce it — rather than announcing it and then designing it?
3) Microdrives hardly do justice to the rest of the machine and defeat their purpose of cheap, high speed, storage devices by their high cost (5p per K).
4) QDOS may be the best thing since the floppy disc but I prefer CP/M and Wordstar.

A Cunningham
47a Pentwyn
Hill Top
Ebbw Vale
Gwent

Only one reply

The letter from J Roberts (*PCW* Peek & Poke 17-23 May — headed 'Waiting Game'), and your reply, require further comment. You suggested that you would not submit a program for evaluation to more than one company at a time. If I had taken that approach I would still be waiting for my first reply!

My son wrote a program for the most popular machine, the 48K Spectrum, during 1983. The program was most original, and to date there is still nothing like it available. After local expert advice, and many favourable comments, he was urged to get the program on the market. I forwarded a copy to a number of software houses advertising for programs but only received one reply. The others still have the tape, and have not sent any acknowledgement after over *four months*.

The local press heard of my son's program and did a very nice article on him, which led to an approach from Anglia Television. Two months ago he was featured on Anglia News and during the interview his program was highlighted and explained better than any other computer program or advertisement I have seen on television. I wrote again to the same companies pointing out the publicity and asked for a decision on marketing, as the need to have the program available was urgent. Only *one* company had the decency to reply.

I know this program is far superior to a lot of the disappointing software currently appearing in glossy advertisements, a fact which has been confirmed from many sources. However, like Mr Roberts, when it comes to contacting the people who matter we get no satisfaction. Could it be that these companies are already making too much money?

Keith Alston
2 Rosetta Close
Wivenhoe
Essex

Music and micros

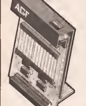
The Capital Region Information Centre (CRIC) part of the Micro-electronics Education Program (MEP) are producing a booklet for music teachers and students entitled *Micro-computers and Music Education*. Following an introduction to the subject, the booklet will contain a list of useful software/hardware currently available.

Could you find room in your next issue to announce this, and ask any readers with relevant information regarding software/hardware to send details to the following address.

Nick Pickett
Music Dept
Middlesex Polytechnic
Trent Park
Cockfosters
Hertfordshire



Programmable Interface



Hardware programmed this interface attains Joystick or Trackball compatibility with ALL Spectrum or ZX81 software.

Without internal memories or tapes to load the direct addressing mode offers the fastest computer response to controller movement with programming being retained when the power is off.

Eight directional capability is automatically achieved by just setting up, down left and right.

The hardware approach is totally compatible with all key reading techniques unlike memory programmed devices.

Supplied with Quick Reference Cards, to speed up setting to your favourite games, demonstration cassette and twelve months guarantee.

26.95 plus £1 post & packing

Interface II

9.95



Now the AGF Interface II is even better value. Since we pioneered the cursor key interface in October 1982 there are now over 100 games or utility programs with either the AGF option or cursor key controlled. That makes it unbeatable at this new low price.

Still incorporating the all important rear expansion connector which means other peripherals can be controlled at the same time i.e. Ram Packs, Printers, Speech Units etc, and of course the key replication principle used guarantees this will never conflict electrically with any other add-ons.

NEW

RomSlot

Now is your chance to enter the growing world of instant loading games.

All ROM Cartridge software can be keyboard controlled so a joystick is not essential.

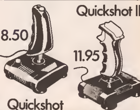
Only high quality programs are available on ROM and soon a whole new range is to be launched by Parker Games exclusively on cartridge, for the Spectrum.

RomSlot's unique 'Game Restart' will restart the game at any time during play. When no game cartridge is in use this becomes a useful computer reset facility from crashes or conventional machine code programs.

RomSlot is fully compatible with all other add-ons via a rear connector and is cased and fully guaranteed for twelve months.

only 11.95 plus 50p post & packing

Quickshot II



Quickshot

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Time-A-Climber

Collect three flags before time runs out in this game for 16K Spectrum by Alan Jarvis

Time-a-Climber is a 10 screen climbing game where you (the climber must collect three flags before your enemy (time) runs out The flags always appear at the same positions on the screen every time, but the scenery around them always changes

You start at the bottom level each time and must scale the levels to reach the flags in as fast a time as possible Each screen is made up of girders and ladders (there are no ladders on the first two screens)

The climber can jump from girder to girder, ladder to girder, ladder to ladder, drop from ladder to girder etc But beware of some flags! Collecting the third flag on each screen will put you into the next screen but some flags *must* be left until last. These flags can easily be collected but are often 'out on a limb and the drop from them is often big enough to kill the climber

The climber also dies when his time runs out, he jumps into a girder or falls too far from a girder/ladder Beware the 'Z' key it will move you down whether there is a girder below you or not.

Short Instructions are given in the game, but the keys are

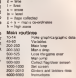
a – up	n – left	CAPS/n – jump left
z – down	m – right	CAPS/m – jump right

Main variables

tt = time
l = lives
s = score
le = level
ll = flags collected
x + y = man s co-ordinates
h = high score

Main routines

10-14	Poke graphics/graphic data
45-50	Variables
200-230	Main loop
300-330	Man s drop
500-525	Lose life/game over
600-620	Man jump
900-920	Collect flag/clear screen
1000-1030	Set screen
2001-3010	Girders and ladders data
4000-5060	Instructions



```
0>REM   TIME-A-CLIMBER
0>REM   --------------
0>REM   BY ALAN JARVIS
0
8 CLEAR
9 LET h=0  POKE 23658,8
10 FOR a=USR "a" TO USR "d"+7
12 READ b  POKE a,b  NEXT a
14 DATA 0,255,129,66,36,24,0,b
,0,24,56,24,0,b,b,b,24,18,52,90,
24,36,b,182,66,126,66,b,b,126,56
,b
40 OVER 0  POKE 23693,56  BORD
ER 7  CLS   GO SUB 4000
45 LET tt=2000  LET e=-10
48 LET l=3  LET s=0  LET le=1
50 LET fl=0  LET x=20  LET y=1
5  LET t=ABS (e S)
100 BORDER 1  OVER 0  CLS
105 PRINT PAPER 1, INK 7,TAB 31
;" ",TAB 0,"SCORE ",s,TAB 15,"A-
",l,TAB 23,"HI ",h,TAB 0  PRINT
#1,AT 1,0,"SCREEN ",le
120 PRINT AT x,y,"A"
125 GO SUB 1000  OVER 1
130 FOR b=1 TO 150  NEXT b
200 FOR t=tt TO 0 STEP e
201 PRINT #1,AT 1,21,"TIME ",T.

205 PRINT AT x,y,"A"
210 LET y=y+(INKEY$="m")-(INKEY
$="n")
216 LET x=x+(INKEY$="z")-(INKEY
$="a")

218 IF INKEY$<"a" AND INKEY$>"0
 THEN GO SUB 600
220 LET at=ATTR (x,y)
222 PRINT AT x,y,"A"
223 IF at<>57 THEN GO SUB 700
225 IF SCREEN$ (x+1,y)=" " THEN
 GO SUB 300
229 IF t<=200 THEN LET xx=45
230 BEEP .005,xx  NEXT t
235 PRINT #1,AT 1,26, FLASH 1,"
000000"  FOR a=1 TO 300  NEXT a
 GO TO 500
300 FOR a=1 TO 20
305 PRINT AT x,y,"A"  LET x=x+1
315 PRINT AT x,y,"A"
320 BEEP .01,x  IF SCREEN$ (x+1
,y)=" " THEN GO TO 330
325 NEXT a
330 IF a<4 THEN RETURN
500 FOR a=1 TO 3  FOR b=0 TO 3
 PRINT OVER 0,AT x,y, INK b,"A"
 BEEP .15,b  NEXT b  NEXT a
508 LET l=l-1
512 IF l>0 THEN GO TO 50
513 BEEP 2,-20
515 IF s>h THEN LET h=s  PRINT
FLASH 1,AT 1,26, OVER 0,s
590 PRINT OVER 0, FLASH 1,AT #1
,0,"   GAME  OVER   ", INVERSE 1
,"   GAME  OVER   "  FOR q=1 TO
600  NEXT q
595 GO TO 40
600 LET j=(INKEY$="M")-(INKEY$=
"N")  LET x=x-1
610 LET at=ATTR (x,y)  PRINT AT
x,y,"A"  BEEP .05,0  GO SUB 700
  PRINT AT x,y,"A"  LET y=y+j
615 LET x=x-1  LET at=ATTR (x,y
)  PRINT AT x,y,"A"  BEEP .05,12
  GO SUB 700  PRINT AT x,y,"A"
620 LET y=y+j  LET at=ATTR (x,y
)  GO SUB 700  RETURN
701 IF at=58 THEN GO TO 500
702 IF at=60 THEN GO TO 900
703 RETURN
900 OVER 0  PRINT AT x,y,"A"  F
OR z=35 TO 40  BEEP .01,z  NEXT
z  LET fl=fl+1  LET s=s+100  PRI
NT AT 1,6  INVERSE 1,s  OVER 1
IF fl<3 THEN GO SUB 500  GO TO 2
00
910 PRINT #1,AT 1,26, FLASH 1,t
  LET s=s+t  FOR a=-20 TO 20  BE
EP .05,ABS a  NEXT a  LET le=le+
1
915 IF le=11 THEN LET e=-1  LE
T l=l+1  LET tt=tt+1000  LET e=-
(tt/100)
920 GO TO 50
1000 RESTORE 2000+le
1005 READ a  FOR b=1 TO a  READ
c,d,e  FOR f=0 TO e  PRINT AT c,
d+f, INK 2,"V"  NEXT f  NEXT b
1010 RESTORE 3000+le
1015 READ a  FOR b=1 TO a  READ
c,d,e  FOR f=0 TO e  PRINT AT c+
f,d,"H"  NEXT f  NEXT b
1020 INK 4  PRINT AT 17,4,"f",AT
 3,26,"f",AT 10,15,"f"  INK 2
1025 PLOT 0,6  DRAW 0,153  DRAW
255,0  DRAW 0,-153
1028 PRINT AT 21,0,"VVVVVVVVVVVV
VVVVVVVVVVVVVVVVVVVV"
1030 INK 1  RETURN
2001 DATA 10,19,1,8,18,8,10,16,1
7,5,15,12,2,14,18,3,13,8,4,12,14
,6,10,11,1,8,14,7,5,22,5
2002 DATA 12,19,2,4,19,9,16,17,9
,0,18,3,1,13,6,2,16,9,9,15,19,0
13,13,4,11,18,4,9,22,2,6,22,2,6,
17,3
2003 DATA 7,19,2,5,17,6,18,13,13
,1,13,16,11,6,13,3,6,16,0,6,18,1
0
2004 DATA 9,19,3,2,19,10,11,15,3
,5,13,9,2,13,15,3,6,16,2,11,20,0
,8,21,5,5,21,6
2005 DATA 9,19,2,5,17,7,0,18,7,0
,13,8,6,13,6,3,10,19,4,5,24,3,6,
22,4,6,3,15
2006 DATA 6,6,8,17,0,26,2,13,11,
0,13,3,0,15,5,5,15,13,5
2007 DATA 7,19,3,3,18,9,12,6,3,4
,6,11,0,13,21,4,8,23,0,6,26,1
2008 DATA 12,6,4,3,6,9,3,6,14,7,
6,25,0,6,27,3,11,17,6,13,10,7,15
,16,4,17,21,5,19,8,12,14,0,8,14,
2,0
2009 DATA 4,10,17,0,12,3,2,12,7,
2,12,21,6
2010 DATA 15,3,10,7,5,4,5,5,11,5
,5,10,4,5,24,5,6,2,2,8,7,1,10,3,
3,7,10,7,9,18,5,10,23,3,14,14,2,
19,18,4,6,26,2,6,23,0
3002 DATA 0
3003 DATA 2,7,11,7,9,18,7
3004 DATA 3,11,2,6,7,13,7,5,19,5
3005 DATA 5,4,20,3,11,7,0,11,13,
6,16,11,3,4,1,13
3006 DATA 6,3,3,11,3,19,5,3,24,5
,10,19,5,12,21,5,14,23,6
3007 DATA 8,3,1,15,4,9,7,4,21,7,
9,11,6,0,13,6,9,17,5,9,19,5,3,25
,0
3008 DATA 3,4,2,8,4,23,9,16,8,7
3009 DATA 11,10,2,7,9,11,7,9,19,
3,7,13,7,7,17,7,5,16,1,18,15,1,3
,24,4,3,20,4,6,20,4,11,20,0
3010 DATA 5,8,9,9,8,17,3,10,26,4
,13,26,3,15,3,0
4000 PRINT TAB 9,"TIME-A-CLIMBER
"''TAB 9, INK 2,"By Alan Jarvis"
4005 FOR A=21 TO 4 STEP -1  PRIN
T AT A,0, INK 1,"H", INK 2,AT 21
,21-A,"V"  NEXT A
4008 PRINT AT 6,2, INK 4,"f", IN
K 1,AT 20,15,"A"
4010 INK 1  PRINT AT 5,20,"
   up",AT 7,20,"         down",
AT 9,20,"         left",AT 11,20,
"        right",AT 13,20,"   jump
left",AT 15,20,"  jump right"
4015 PRINT INK 4,AT 18,20,"f
100 pts",#1, PAPER 6,AT 1,0,"
 Press Any Key To Play      "
4020 OVER 1  LET b=20  LET c=15
4025 RESTORE 5000  FOR a=1 TO 29
  PRINT AT b,c,"A"  READ b,c  PR
INT AT b,c,"A"  BEEP .1,a
4030 IF INKEY$<>"" THEN RETURN
4035 NEXT a
4040 OVER 0  PRINT AT b,c,"A"  F
OR a=35 TO 40  BEEP .01,a  NEXT
a  PRINT AT 20,15,"A", INK 4,AT
b,c,"f"  GO TO 4020
5000 DATA 20,14,20,13,20,12,20,1
1,20,10,20,9,20,8,20,7,20,6,20,5
,20,4,20,3,20,2,19,2,18,1,18,0,1
7,0,16,0,15,0,14,0,13,0,12,0,11,
0,10,0,9,0,8,0,7,0,5,1,6,2
```

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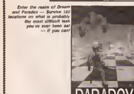
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Gosh, it's GOSH

David Kelly talks to Rod Cousens, Vice Chairman of the Guild of Software Houses

At the end of last month GOSH — the Guild of Software Houses — approved its constitution and formally inaugurated itself as the representative body for the interests of the British games software companies.

Membership of the group is now over 30 — including most of the top names in the industry. So it seems an appropriate time to take a look at the group's aims.

Undoubtedly the biggest challenge faced by GOSH is the job of controlling the now rampant commercial piracy of its member's tapes. Indeed, this single goal is the reason why GOSH's two founders — Quicksilva MD Rod Cousens and Virgin's Nick Alexander — have been successful in drawing together so many companies, which would normally be fiercely competitive, to a meeting in May at a London hotel. The problem of piracy affects them all — the more so now, at the start of the Summer, traditionally the quietest part of the year.

Home taping always used to be the one topic to inspire apoplectic reactions from games house bosses. That's changed. Commercial piracy has fast become big business.

"Piracy has now reached levels which suggest software houses have got to take action soon," says Rod Cousens.

"Just after Christmas Nick and I were called to the offices of the British Phonographic Institute — the watchdog of the record industry. Through their solicitors they had commissioned a raid on a known audio counterfeiter — searching for the music industry — and when they went in they found significant quantities of copied computer software. Copies of such a standard — with colour inlay cards and the body of the cassette the same colour as the original — that it was difficult to distinguish them from the original.

"That is just one example. At this very moment the Quicksilva game *Fred* is available at market stalls up and down the country selling for between £1.50 and £2.50. These are copies — around 30,000 tapes are involved."

Open season

Big figures indeed. Certainly quite enough to damage any company. Even the most successful of the companies in the UK's burgeoning games market can ill afford that level of counterfeiting.

The reason for the dramatic increase of commercial software piracy is simple. Measures being taken against pirates in the record and video industries are showing signs of being effective. And those same illegal operators are switching their attention to computer software. Video games are much in demand. Often a computer game is more expensive than an audio album. And software piracy is virtually open season. "Software houses don't seem to be keen to take preventative measures to combat illegal copying.

"The most obvious reason for this reluctance on the part of the software houses to take action is because there is no obvious legal protection they can seek. A precedent that computer software is covered by copyright badly needs to be established.

"In attempting to establish that precedent any software house is exposed to the threat of substantial damages should the attempt fail. Damages of such a level that the company might well be forced into liquidation. Hence there hasn't been a flood of companies trying to straighten the law out."

Socially acceptable

This is where GOSH comes in. It is in the process of incorporation and it will represent its members in any legal process. This has involved the setting up of a legal fund to fight piracy. So far, over £50,000 has been pledged by GOSH members to fight piracy. Each member contributes an amount related to the annual turn-over of the company — a business collated by a professional intermediary. Such information is closely guarded by companies in an industry where hype is second nature.

"But the overwhelming evidence of the scale of the problem has now prompted them — through GOSH — to finance the legal process that is necessary to establish once and for all that software is subject to the same protection afforded by law to an audio or video work."

Home taping is a much more difficult problem to tackle. Indeed, it is questionable if it can be tackled at all. Like audio and video home taping, home duplication of software is a 'socially acceptable' crime.

An even more thorny problem for the software industry is the whole question of copies onto alternative media. Just as one might copy a record onto a cassette tape for one's own use in the car, most owners of Microdrives or discs are keen to copy their cassette software onto other media. Discs and Microdrives are faster, more convenient and more reliable. So who can blame them. Indeed, Sinclair for one is actively encouraging UK software houses to include a cassette to microdrive copy option in all their cassette programs.

Rod Cousens admits the whole home copying question is tricky. "It is a totally impractical area to police — most of those doing the copying are minors anyway. The one area we are keen to take action against are the blatant copying clubs which exist in user groups and schools."

"We are looking to parents and teachers and magazines to educate people that home taping is hurting the software industry. If home taping is got under control it can only benefit the consumer. Profits of software houses will go up, game prices can then come down and more money will be available to develope new games."

GOSH will, he feels, play an important role in the continuing expansion of the British game industry. "The industry is still young and naive — people who lack commercial experience are now being subjected to a rude awakening because their livelihood is being threatened. Many of them ignore, for example, the overseas market which is where they are most abused.

"Pirated software is being imported into this country from agents who hold licencing and manufacturing agreements abroad. Yet in certain countries — like Germany and Holland — you can go to the police and they will take criminal proceeding on your behalf. Illegally copied software from British houses is blatently sold in multiple retailers in Holland, Portugal, Germany, Italy, Belgium. It goes on and it must be stopped."

Although software piracy is for the moment GOSH's main concern, it is also hoping to legitimise the industry as far as the consumer is concerned. If any customer has a complaint against any GOSH member then it will be investigated and if the complaint is upheld then the member could be expelled.

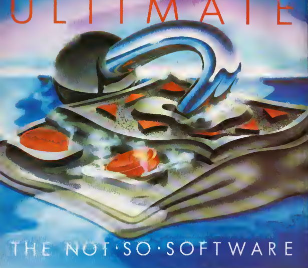
GOSH has a dealer charter and is hoping to establish a code of conduct between software houses and the Guild of Computer Retailers. At the same time GOSH offers the industry a representative body. "You can't just go and lobby MPs for a change in the copyright law unless you are recognised as such," observes Rod.

The emergence of GOSH is further indication of the painful changes taking place below the surface of the software industry. It is having to grow up very quickly indeed. It must do so if it is to survive.

But one cannot help but be a little sad. In doing so it will lose much of its charm. It will become more competitive, less friendly, and not as exciting. The professionals are taking over.



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Reviews

Galactic garage

Jet Power Jack from Program Power has received a lot of publicity recently and with a great deal of justification — it is a highly enjoyable game

The object of the game is to manoeuvre Jack around his galactic garage (and prison) using his rocket back pack, to collect fuel pods and return them to the waiting space ships The task is made more difficult as the garage is inhabited by a range of creatures and assorted aliens and fittings on the ceiling and edges of platforms are electrified, encounters with either of which cause Jack s demise in a pool of red on the garage floor

There are five very entertaining screens to choose from with the monsters becoming increasingly devious at each successive level. On top of all this Jack has only one minute to complete his refuelling activities

All of this adds up to the sort of game where you tell yourself you will deal with all those important outstanding chores only first you'll have just one more game . this one is definitely the last — no, that didn't count

Simon Wilson

Program *Jet Power Jack* **Pries** £7 95 *Micro* BBC B **Supplier** Micro Power, Northwood House, North Street, Leeds, LS7 2AA

Pranged!

At around £15 *Aviator* is at first sight a somewhat expensive game so let s consider what you get for your money

The actual flight simulation is designed to be as consistent as possible with the characteristics of a Mark II Spitfire In addition to aileron and elevator control using the joystick (or keyboard equivalent) the pilot can operate the rudder throttle engine on/off, undercarriage flaps, brakes plus gun and gunsights — with such a complete range of controls the flight response is quite stunningly realistic The lower half of the display contains a full set of flight instruments all fully functional, the upper portion reveals the cockpit view of the flight scenario including terrain features plus trees and fields to aid in navigation

The highly sophisticated flight program supports several advanced features, allowing you to perform aerobatics (rolls, loops spins and inverted flight) including the possibility of flying under a bridge, buzzing the town of Acornsville and should the need arise, attempting a 'belly landing'

I must admit to having personally written-off a number of Spitfires to date in a series of 'prangs involving bridges, hills runways buildings and aliens, plus the river and other non specified 'ground' — all things considered I've managed to walk away from some pretty horrific crashes My first flight terminated after about 2 mins but I am now much improved and confident in my abilities to loop the loop fly under the bridge and even 'bag' the occasional alien — if only I could land .

Finally, if you re still comparing *Aviator* in terms of price its durability as a lasting source of entertainment must make it a good investment After many hours flying my appetite for the game continues to increase

Simon Wilson

Program *Aviator* **Price** £14 95 (£17 95 on disc) **Micro** BBC B **Supplier** Acornsoft 4a Market Hill Cambridge

Gothic listings

ISP s *Character Generator* is a utility which allows you to define UDG (user defined graphics) characters, and to redefine the character set (allowing 96 UDG's in effect) The idea is not new, but this is quite a good implementation

The program revolves around a menu which has eight options These are define a character, display individual character, display whole character set, reset character set, save character set and UDGs, define a UDG, display all UDGs and finally alter character/UDG

The program is written entirely in Basic but this does not matter as it is fast enough for the purpose The only real problem that I found with it is that there is no *Abort* option when you are designing a character

Probably the best part of this utility isn't in the program at all On the reverse of the tape are pre-designed character sets Gothic, Computer, Algerian, US type, Cut-in and Revue These give you an example of what is possible, and you can use them to liven up your own programs as well Listings look particularly good in Gothic

Simon Lane

Program *The Character Generator* **Price** £8 95 **Micro** Spectrum **Supplier** ISP Marketing Ltd, Hampstead House, New Town Centre, Basingstoke RG21 1LG.

Quartz prisms

Recently there has been a trend towards games incorporating elements of both arcade and adventure within a single program A different approach to mixing the two styles is found in *Attack on Windscale* This consists of packaging two games together under one title — one game of each type The story line involves the defence of the Windscale power station against alien invaders, and by completing the various skill levels of the arcade game you obtain clues which aid you in the adventure However, you cannot begin the second game



until you have completed all the levels of the first

This seems a quite original approach to games programming However the games themselves are perhaps not as original as the overall concept The arcade section is a pretty straightforward shoot 'em up



The adventure game is in two parts — first you must find some quartz prisms hidden in the Windscale complex and then find an alien transmitter and use the prisms to destroy it Both phases of the game are primarily text based although the first part has a few block graphics pictures

Overall, this is an interesting package — a bit different from other games for the 64

Richard Corfield

Program *Attack on Windscale* **Price** £9 95 **Micro** Commodore 64 **Supplier** Phoenix Software, Spangles House, 116 Marsh Road, Pinner, Middlesex

Derring-do

Wizard's Challenge Ian Muriss's adventure for the BBC B, starts in a school — not the most likely setting for episodes of derring do Little jokes about school dinners leaven the lump It is a very traditional game with standard key words and a collection of passwords for use in gaining access to various areas in the park tunnel desert castle or pyramid that soon become the backdrop to the quest You need logic rather than inspiration luck or lateral thinking to get around

The text uses the colour facilities of BBC's Mode 7 to brighten the proceedings and you can save the game when you want to pause for a while or before you risk losing your life This is a very useful feature to save hours of repetition As usual you have to collect a dozen treasures and bring them to the evil wizard

Clearly aimed at school pupils who love to do its dream this is a competent adventure game that should keep novices busy for a day or two, though old hands may find it fairly easy to crack

Jan Watterson

Program *Wizard's Challenge* **Price** £7 95 **Micro** BBC B **Supplier** Program Power 5/6a Regent Street Chapel Allerton, Leeds LS7 4PE

Barbarian

The strategy game *The Fall of Rome* is played against the background of the Roman Empire of 395AD

In 12 turns, each representing five years you must try to expand and preserve the Empire although the game's title suggests your chances are slim Each turn is divided up into three phases the Income phase to set you up financially the Movement phase when you can move your forces to prepare for the Combat phase in which you can attack any one Barbarian tribe or army in a Province

This game requires a fair amount of playing time to fully understand it and gain successful results I found that it is difficult to allocate sufficient legions to the high income provinces in order to keep the enemy at bay which means you are liable to lose all of the best provinces fairly early on in the game

As this game is written in Basic, you have to wait after each phase for a response from the computer However it is enjoyable to play and presents a good challenge

Luke Tornero

Program *The Fall of Rome* **Price** £6 99 **Micro** Spectrum/BBC/CBM 64/Atari **Supplier** Argus Press 1 Golden Square London W1R 3AB

Under water

In the early days of the Commodore 64 the choice of readily available software was very limited One of the first programmers to write a number of games for the 64 was Ian Gray of Interceptor Micros He has continued to produce a steady stream of new programs since, one of his latest being *Aquanaut* Comparing this with some of his earlier efforts, it is quite striking how the quality of the product has improved since the early games For example the graphics in *Aquanaut* are excellent although fairly uncomplicated — the scrolling (both horizontal and vertical) and the movement of objects around the screen are as good as any I have seen on the 64

The initial good impressions are completed by the rapid loading of the game which loads in about a minute and a half thanks to a utility called *Ultra Load* Unfortunately one aspect of Ian Gray's games programs has not improved with time — the playability of the game itself!

The game has an aquatic version of a pretty standard scenario — you have to pilot a submarine craft above the sea bed and through caverns avoiding and destroying various threats like hostile craft torpedoes and mines However, the difficulty of the game is such that it is no longer challenging but merely irritating

Richard Corfield

Program *Aquanaut* **Price** £7 00 **Micro** Commodore 64 **Supplier** Interceptor Micros, Lindon House, The Green, Tadley, Hants

Strike quickly!

Monsters & Magic by Jonathan Holmes is much more exciting for my money than traditional adventures It attempts to computerise dungeons and dragons' games You begin by setting up your own character from a range of types You choose your profession physical type (human elf dwarf) and attributes By selecting carefuly from the weapons, spells and powers on offer you establish a character to tackle the adventures ahead This factor alone would allow some variety in the game each time you play where ordinary adventure games become boring once completed Your hero changes as a result of the adventures he or she undergoes and may have rather different characteristics when you enter part two

You may find it useful to type *TV 255 and then *Break* before starting to load as some of the text is very near the top of the screen After the character program has run, the game itself loads and then you load in a file describing the location of your adventure

The Beeb has always suffered from memory limitations in long games, but this has not stopped *Monsters & Magic* from including limited graphics to show you what each room looks like The function keys are also used to allow you to respond quickly in emergencies For here's the rub — when you are attacked in this game there is a real time risk When the message "strike quickly flashes on screen you must take it literally and hit, spell or flee at once

Jan Watterson

Program *Monsters and Magic* **Price** £6 95 **Micro** BBC B **Supplier** Marketing Ltd Hampstead House, New Town Centre, Basingstoke

A filed copy

***Geoff Dye** presents a utility program for copying, verifying and reading data files*

Filecopy is a useful utility program for reading, verifying and copying data files to either another tape or a printer output

This is a relatively simple concept but has already proved to be most useful in helping to reconstruct 'corrupted' tape files, as the screen display also shows an item number alongside the data string

Instructions are included as on-screen prompts and features such as item count verification and fast/slow screen listing are standard Pause loops are employed to enable the user to 'break' the program in various places whereby *Goto* other program sections is possible without losing the data stored in the main A$ array

Keying < RETURN > in response to *Filename?* will suffice to start the process, but a filename is desirable when saving to a new tape is intended

Program notes

10-30	Initial set-up
40-110	Introduction
120-150	Description and main menu
160-150	Defines routines
190-300	Read and count routine
310-460	Verify F/S and count routine
470-780	Read check item count and copy to new tape file
780-1150	Read, check item count and output to printer
2000-2080	Reset main array plus fast and slow display routines.

```
10 REM filecopy for DRAGON 32
20 CLEAR 5000
30 GOSUB 2000
40 CLS:PRINT@102,"%7%%%%%%%%%%%%%%%%%"
50 SOUND 200.2
60 PRINT@134,"FILE VERIFIER/COPIER"
70 SOUND 200.2
80 PRINT@166,"%%%%%%%%%%%%%%%%%%%"
90 SOUND 200,2
100 FOR P=1 TO 500:NEXT P
110 PRINT@326,"BY GEOFF DYE ,JAN.'84"
120 FOR P=1 TO 2000:NEXT P
130 CLS:PRINT"THIS PROGRAM IS DESIGNED TO":PRINT"COPY DATA FILES FROM ONE TAPE":PRINT"TO ANOTHER
 WITH THE FACILITY"
140 PRINT"TO VERIFY CONTENTS AND/OR ITEM  COUNT FIRST IF NECESSARY."
150 PRINT"KEY FOR SELECTION":PRINT:PRINT"<1>  ITEM COUNT ONLY":PRINT"<2>  VERIFY + COUNT":PRINT"
<3>  QUICK COPY (NO DISPLAY)":PRINT"<4>  OUTPUT TO PRINTER":PRINT"<5>  FINISH PROCESSING"
160 PRINT@416,(:LINEINPUT"NUMBER : ";K$
170 K=VAL(K$):IF K<1 OR K>5 THEN PRINT@416:GOTO 160
180 ON K GOTO 190,310,470,810,1160
190 REM first routine
200 CLS:PRINT:PRINT:PRINT"INSERT ORIGINAL FILE INTO TAPE  PLAYER IN POSITION TO READ THE  DATA F
OR COPYING."
210 PRINT:PRINT"PRESS <PLAY> AND INPUT FILE NAMEBELOW."
220 PRINT:INPUT"FILENAME ";F$
230 C=0
240 OPEN'I",£-1,F$
250 IF EOF(-1) THEN 270
260 INPUT£-1,A$:C=C+1:GOTO 250
270 CLOSE £-1:FOR W=1 TO 2500:NEXT W
280 CLS:PRINT:PRINT"FILE NAME= ";F$:PRINT"ITEM COUNT WAS ";C
290 PRINT:PRINT"RESET TAPE FOR NEXT SECTION.'
300 FOR W=1 TO 2500:NEXT W:GOTO 2000
310 REM second routine
320 CLS:PRINT:PRINT:PRINT"INSERT ORIGINAL FILE INTO TAPE  PLAYER IN POSITION TO READ THE  DATA F
OR COPYING."
330 PRINT:PRINT"PRESS <PLAY> AND INPUT FILE NAMEBELOW."
340 PRINT:INPUT"FILENAME ';F$
350 OPEN"I",£-1,F$
360 C=1
370 IF EOF(-1) THEN 390
380 INPUT£-1,A$(C):C=C+1:GOTO 370
390 CLOSE £-1.FOR W=1 TO 2500-NEXT W
400 CLS:PRINT:PRINT"ITEM LIST FOLLOWS."
410 INPUT"FAST OR SLOW LISTING F/S";S$
420 IF S$<>"F" AND S$<>"S" THEN 400
430 IF S$="F" THEN GOSUB 2040 ELSE GOSUB 2070
440 CLS:PRINT-PRINT"FILE NAME= ";F$:PRINT"ITEM COUNT WAS ";C
450 PRINT:PRINT"RESET TAPE FOR NEXT SECTION."
460 FOR W=1 TO 2500:NEXT W:GOTO 2000
470 REM third routine
480 CLS:PRINT:PRINT:PRINT"INSERT ORIGINAL FILE INTO TAPE  PLAYER IN POSITION TO READ THE  DATA F
OR COPYING."
490 SOUND 200,1:SOUND 200,1:SOUND 200,1:SOUND 200,1:SOUND 200,1
500 PRINT.PRINT"DO NOT PROCEED UNLESS YOU KNOW  THE ITEM COUNT.":PRINT"ENTER <P> TO CONTINUE."
510 PRINT:INPUT"PROCEED ';X$:IF X$ >"P" THEN 520 ELSE 530
520 CLS-GOTO 150
```

```
530 CLS:PRINT:PRINT"PRESS <PLAY  AND INPUT FILE NAMEBELOW."
540 PRINT:INPUT"FILENAME ";F$:INPUT "ITEM COUNT ";C
550 OPEN"I",£-1,F$
560 R=1
570 IF EOF(-1) THEN 590
580 INPUT£-1,A$(R):R=R+1:GOTO 570
590 CLOSE £-1:FOR W=1 TO 2500:NEXT W
600 CLS:PRINT:PRINT"FILE ";F$;" HAS";R;" RECORDS."
610 PRINT"ORIGINAL COUNT WAS ";C;" RECORDS"
620 PRINT"INPUT <P> TO PROCEED."
630 INPUT"PROCEED ";D$
640 IF D$<>"P" THEN 650 ELSE 660
650 GOTO 2000
660 CLS:PRINT:PRINT"REMOVE ORIGINAL TAPE AND PLACE  FRESH TAPE INTO RECORDER."
670 REM routine to save data to new tapefile
680 CLS:SOUND 200,2
690 CLS:PRINT@102,"%%%%%%%%%%%%%%%%%%"
700 SOUND 200,2
710 PRINT@134,"SAVING DATA TO TAPE"
720 PRINT@166,"%%%%%%%%%%%%%%%%%%"
730 SOUND 200,2
740 OPEN"O",£-1,F$
750 FOR L=1TO R:PRINT£-1,A$(L):NEXT L
760 CLOSE£-1
770 CLS:PRINT:PRINT"FILE ";F$:PRINT"COPY NOW COMPLETED"
780 FOR N=1TO 2500:NEXT N
790 CLS:GOTO 20
800 REM fourth routine
810 CLS:PRINT:PRINT:PRINT"INSERT ORIGINAL FILE INTO TAPE  PLAYER IN POSITION TO READ THE  DATA F
OR COPYING."
820 PRINT"ENSURE THAT PRINTER IS READY    AND CONNECTED."
830 SOUND 200,2:SOUND 200,2:SOUND 200,2:SOUND 200,2
840 PRINT:PRINT"DO NOT PROCEED UNLESS YOU KNOW  THE ITEM COUNT ":PRINT"ENTER <P> TO CONTINUE ":P
RINT
850 INPUT"PROCEED ";X$:IF X$<>"P" THEN 860 ELSE 870
860 CLS:GOTO 150
870 PRINT:PRINT"PRESS <PLAY> AND INPUT FILE NAMEBELOW."
880 CLS:PRINT:PRINT"ENTER FILENAME AND ITEM COUNT."
890 PRINT:PRINT:PRINT:INPUT"FILENAME ";F$
900 INPUT"ITEM COUNT ";C
910 OPEN"I",£-1,F$
920 R=1
930 IF EOF(-1) THEN 950
940 INPUT£-1,A$(R):R=R+1:GOTO 930
950 CLOSE£-1
960 FOR W=1 TO 2500:NEXT W
970 CLS:PRINT:PRINT"FILE ";F$;  HAS";R;" RECORDS."
980 PRINT"ORIGINAL COUNT WAS ";C;  RECORDS "
990 PRINT"INPUT <P> TO PROCEED."
1000 INPUT "PROCEED ";O$
1010 IF O$  "P" THEN 1020 ELSE 1030
1020 CLS:GOTO 130
1030 REM copy to printer routine
1040 CLS:PRINT@102,"%%%%%%%%%%%%%%%%"
1050 SOUND 200,2
1060 PRINT@134,"OUTPUT TO PRINTER"
1070 SOUND 200,2
1080 PRINT@166,"%%%%%%%%%%%%%%%%"
1090 SOUND 200,2
1100 OPEN"O",£-2,F$
1110 FOR L= 1 TO R:PRINT£-2,A$(L):NEXT L
1120 CLOSE £-2
1130 CLS:PRINT:PRINT"FILE ";F$:PRINT"PRINTING COMPLETED."
1140 FOR N=1 TO 1000:NEXT N
1150 CLS:GOTO 20
1160 CLS:PRINT:PRINT"PROCESSING FINISHED.":PRINT:PRINT"TO RESTART TYPE <RUN> + <ENTER>.":END
2000 REM reset main array
2010 CLEAR 5000
2020 DIMA$(700)
2030 GOTO 40
2040 CLS:PRINT:PRINT"FAST LISTING FOLLOWS ":PRINT
2050 FOR L=1 TO C:PRINTL;" ";A$(L):NEXT L
2060 RETURN
2070 CLS:PRINT:PRINT"SLOW LISTING FOLLOWS.":PRINT
2080 FOR L=1 TO C:PRINTL;" ";A$(L):FOR P=1 TO 500:NEXT P:NEXT L
2090 RETURN
```

Upon my word!

***Malcolm Davison** looks long and hard at the Psion QL packages, beginning with Quill, the word-processor*

The Sinclair QL application packages — written by Psion — offer a powerful integrated package adequate for all but the most exceptional uses

The packages are modelled on the best of the state of the art software and the emphasis has been on simplicity of use, rather than exceptional versatility so that even a casual user will experience little difficulty in getting to grips with them

Over the next few weeks we will have a detailed look at each program s strengths and weaknesses

To kick off let s try *Quill*, the word processor

Quill

My first disappointment was the fact that the program took two minutes to load from the microdrive I felt that my main reason for buying a QL had taken a dent — my Spectrum for example loads the *Tasword* word-processor in much the same length of time As the days wore on, though my view that the Microdrives were a hindrance changed I began to realise just how good the Psion programs are

The main *Quill* display provides you with basic information on which function keys do what — *F1* for help information, cursor keys to control cursor movement, *Delete* with the *Control* and cursor keys alter typeface with *F4*, change mode (from insert to overwrite) with *Shift* and *F4*, remove prompt to enlarge the typing area *F2*, to summon commands *F3* — with the commands given in two screen headings, and finally *Escape* to get out of anything you started that you don't want to pursue

A bad medium

You can literally start typing in and with this most basic outline very easily get by with little further knowledge In fact your first question might very well be — How do I print out or save my text? A curious prod at *F3* offers you the first list of commands — Commands 1 mode – giving both a *Save* and a *Print* command It tells you to press the first letter of the command, say 'S — and not unexpectedly it asks for a name for the document. Typing this in and pressing Enter sets the microdrives into action You are given an option to make a duplicate copy on another cartridge or to return to the text If your document is either important or lengthy a duplicate would be most advisable — the Microdrives in the main are reliable, but you will at some stage see the message Bad medium which is not a comment on a spiritualist s performance!

The screen is automatically set to 64 or 84 characters depending on whether you selected the TV or Monitor option when you switched on the QL. There is an option to alter it to 40 characters using the *Design* command, but I suspect that few people except those with impaired eyesight, will select this option

All the commands are as easy to execute — prompts all the way There are no abstruse key codes you have to learn and little practice is called for Sections of copy can be deleted or copied and the areas selected are highlighted before the command is carried out When you change typeface to one of the other options — either Bold High script (subscript) Low script (subscript) or Underline the screen shows a representation of the type, which greatly assists the design and layout of a document

I was concerned that my printer might not be suitable — but I need not have been been — it is neatly catered for An installation routine — which is not part of *Quill* itself — is provided for the benefit of *Archive*, *Quill* and *Abacus* It creates a datafile with the necessary specification which has to be copied to each of the relevant software cartridges Communication protocals are entered, along with page size, characters per line and control codes to access the alternative typefaces including two useful 'translate options to alter a hash sign to a pound sign and other such conversions — especially useful for daisy-wheel printer owners. One shortcoming of this installation procedure is that modification of a few of the items perhaps to switch printers — would mean deleting the datafile and setting up another It would be much better if you could make temporary modifications from within the *Quill* program itself Another oversight is that so few alternatives of typeface are allowed — some printers offer italic, expanded print, double-strike and more besides Yet the installation program gives you no spare capacity to make the fullest use of your printer's facilities

Search and *Replace* functions which perhaps could have been combined into one command are valuable However, as with many of the commands there are significant delays while the Microdrives whirr into action There is a real annoyance in having too many commands with the same initial letter because you are in Commands 1 Mode with the first selection of commands offered and you chose 'S you will get *Save* when you may have really wanted *Search* on the alternate batch of the commands — Commands 2 Mode So if you want a command you have to look for it on the heading — a thing that the manual makes a point to remind you of

The program allows left right or centred justification — at least that's what the manual says In the printing world they would be described as justified left ragged right justified left and right, and centred But not right justified — ragged left However this can be achieved by setting a *Tab Right* A centred tab option and decimal tab are also welcome additions to the more conventional typewriter tab Incidentally tabs are simple to set using cursor keys and the space bar and can be easily removed too You are generously provided with tab positions at every tenth character — which must be studiously removed one at a time should you wish to set your own arrangement

You can add *Header* and *Footer* notes a single line that will be printed on all pages, its position left centre or right may be selected *Forced page* breaks can be added — which will ensure that information is not split by a form feed — and also provides a means to select part of a document to be printed — a requirement that I feel is poorly catered for I often may only want to print out a table or list from a file and *Quill* does not make this very easy Similarly areas of text cannot be saved only the whole document while conversely, sections of text may be added anywhere in the document using the *Merge* command If there is the one why not the other?

On first beginning to use *Quill*, the program adopts a standard default mode — left and right margins an indent, you automatically start in *Insert* mode rather than *Overwrite* (which I personally prefer to use only when I need to) 66 lines per page and surfeit of tabs It is a pity that you cannot tailor the program to allow you to set up your own standards, start-up mode or to keep different alternatives on file It will get tedious for users continually having to adjust *Quill* to their own preferred format with each letter they write You also return to

the standard options having saved and abandoned and might wish to start on another document on the same layout

Quill's handling of hyphenation is a little unusual. It relies on the user deciding that a particular word needs a hyphen — typically this would be in the normal left and right justification mode where 'rivers' can form in the text because of the computer's spacing of words. Some word processors stop you in full creative flow and force you to decide whether or not and where to add a hyphen but *Quill* hyphenation would best be done after the text has been typed to reform the type to the optimum spacing. Doing it this way, certainly prevents an irritating delay, but could cause you to miss hyphen possibilities to optimise the spacing.

The manual refers to a *View* option to pan across documents wider than the screen. This option did not actually exist in the program. Also, other reviewers of this package who have described the *Glossary* command in intimate detail must have seen a pre-production version, or worked from the provisional manual — because it does not exist on the machines winging their way to their patient new owners.

For the record, *Glossary* would have offered the facility to assign any key to recall phrases or commands which you have defined and saved on the Microdrive. Twenty-six or so items would have been available. Shame about all that!

Movement through a *Quill*ed document is handled by specifying a page in a *Goto* command, with the further option to move to the start or end of the document. Page breaks are shown as lines on the screen.

Command language

The avid word processing person using *Quill* will miss some of the more sophisticated features of mainstream word processors that are not offered. There is no 'boiler plate' option — that is, the pulling together of standard paragraphs to create a composite text. There is no facility to merge data. Take for example 'topping and tailing' – putting names and addresses into standard letters. A pity since *Archive* could have provided the source of the data. The mechanics to send out mail-shots, a frequently quoted reason for buying a word-processor, do not exist in the Psion packages. You can't use a command language to access commands quickly or execute commands to, say, print a number of files. A forms handler to facilitate data entry into standard layouts is a feature that not many packages can boast — and indeed *Quill* does not have one. But in some business environments this can be a useful asset. You can't tackle two column printing with *Quill* because resetting the margins, say to the right of existing text, immediately causes the existing text to migrate and reform at the new margin — Pity!

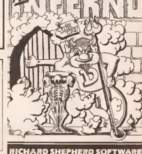
I was pleasantly surprised at the speed with which you can move the cursor around the screen, but less impressed at the speed of appearance of the text on the screen. A fast typist will on occasion be several words ahead of the display and with an 8/32 bit processor it ought to do better than this. On the plus side it is very welcome to see the text reforming whatever hacking about you do to it, without having to be prompted. This sort of facility along with a very useful word-count capability makes this an ideal word processor for the freelance writer or for the business user who may previously have been put off by the complexities of most word-processing packages.

This package with a few additions is likely to receive a following in the business market if Psion do, as they have hinted, sell the packages for other micros.

It seems unfair to criticise the packages at all as they are included free in the already competitive price of the QL — but Psion want them to be taken seriously, and they are so very nearly in the 'big league', it's a pity if they don't take this short step to perfection.

Next week: *Easel*







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Chemical attraction

Jamee Marsdan faces the elements in this chemistry revision program

Chemistry Revision should be useful for exams. It runs in about 6K and is easily convertible to other machines especially the Pet and Vic (+3K)

It was necessary to write the program in lower case mode as chemical symbols are usually shown with a large and small character eg Ar for Argon. Lower case or text mode unfortunately when listed shows only graphic characters for capital letters, thus making the writing hard to read. For this reason I have included a Rem statement by each graphic line showing what the letter is

The program helps you to learn the first twenty elements in the Periodic Table and the Electrochemical Series — a fairly important part of the G C E 'O Level and C S E Examinations Syllabus. When you run the program a menu is displayed

Option 1 This lists the twenty elements, their symbols relative atomic names and atomic numbers.

Option 2 This lists the electrochemical series including symbols and charges

Option 3 This tests all symbols from above two choices — a name or symbol is printed and you must type the answer
For example To H you would type hydrogen
To Iron you would type Fe

Option 4 This tests you on what order the elements come in. It will accept symbol or name

Option 5 This will test you on the element's atomic number

Option 6 This choice tests you on the order of the Electrochemical Series (most reactive first). It will accept symbol or name

Option 7 This tests you on the charge of each electrochemical element (K = +, I = –)

Option 8 This exits from the program

(Note When typing in the program all REM statements can be left out.)

Graphic notes for conversion

Chr$ (8)	Turns off the keyboard toggle for upper/lower case.
Chr$ (9)	Turns on the keyboard toggle
Chr$ (14)	Places machine in lower case mode
Chr$ (142)	Places machine in upper case mode
Poke 198 0	Clear the keyboard buffer

Variable List

R	— Function
E$(X)	— Element names.
S$(X)	— Element symbols
A(X)	— Element atomic numbers.
EC$(X)	— Electrochemical elements
ES$(X)	— Electrochemical symbols
C$(X)	— Electrochemical charges
A$	— Used in *Get* and *Input* statements.
Y	— General *For* — *Next* loops.
Z1 & Z2	— Hold random numbers from function
X$	— Used to format answers to screen
J	— Decision when continuing = 0 Return to Menu = 1

Program notes

20	— Changes border to orange and screen to blue.
30	— Defines a function that when called will return a random integer number between 1 and x inclusive.
40-150	— Assigns variables
160-270	— Display menu
280-310	— Act on choice
320-390	— Display first twenty elements.
400-470	— List electrochemical series.
480-650	— Test on chemical symbols.
660-820	— Test on element order
830-1050	— Electrochemical order
1060-1220	— Electrochemical charges.
1230-1250	— Quit.
1260-1370	— Subroutines for key presses.
1860-2080	— Lists control characters

```
1 REM ***************************
2 REM *                         *
3 REM * CHEMISTRY REVISION      *
4 REM *                         *
5 REM *          BY             *
6 REM *                         *
7 REM *    JAMES   MARSDEN      *
8 REM *                         *
9 REM ***************************
10 PRINT CHR$(8)CHR$(14)
20 POKE53280,8:POKE53281,6
30 DEF FNR(X)=INT(RND(1)*X)+1
40 RESTORE
50 DIME$(30),S$(30),A(20),EC$(17),ES$(17),C$(17)
60 FORY=1TO20
70 READE$(Y),S$(Y),A(Y)
80 NEXTY
90 FORY=1TO30
100 READE$(Y),C$(Y)
110 NEXTY
120 FORY=1TO17
130 READEC$(Y)
140 EC$(Y)=E$(EC):ES$(Y)=S$(EC)
150 NEXTY
160 PRINT"[illegible]
165 REM ↑                    CHEMISTRY REVISION
170 PRINT
175 REM ↑ [illegible]
180 PRINT
190 PRINT" 1 [illegible] ELEMENT
195 REM ↑     D
200 PRINT" 2 DISPLAY ELECTROCHEMICAL SERIES"
205 REM ↑     D
210 PRINT" 3 TEST ON SYMBOLS"
215 REM ↑     T
220 PRINT" 4 TEST ON ELEMENT ORDER"
225 REM ↑     T
230 PRINT" 5 TEST ON ATOMIC NUMBER"
235 REM ↑     T
240 PRINT" 6 TEST ON ELECTROCHEMICAL ORDER"
245 REM ↑     T
250 PRINT" 7 TEST ON ELECTROCHEMICAL CHARGE"
255 REM ↑     T
260 PRINT" 8 - Q
265 REM ↑ QUIT
270 PRINT"PRESS APPROPRIATE KEY"
275 REM ↑ P
280 POKE198,0
290 GETA$
300 IFA$<"1"ORA$>"8"THENGOTO290
310 ONVAL(A$)GOTO320,410,490,670,790,940,1070,1240
320 REM   DISPLAY 1-20 ELEMENTS
330 PRINT"[illegible]
335 REM ↑ ELEMENTS DISPLAY
340 PRINT
350 PRINT"[illegible]
355 REM ↑ ELEMENT SYMBOL AT NO  RAM
360 FORY=1TO20
370 PRINTTAB(3)E$(Y)TAB(16)S$(Y)TAB(26)A(Y)TAB(34)Y
380 NEXTY
390 GOTO1260
400 REM   ELECTRO CHEM LIST
410 PRINT"[illegible]
415 REM ↑ ELECTROCHEMICAL SERIES
420 PRINT
430 PRINT"[illegible]
435 REM ↑ ELEMENT SYMBOL CHARGE
440 FORY=1TO17
450 PRINTTAB(4)EC$(Y)TAB(18)ES$(Y)TAB(25)C$(Y)
460 NEXTY:PRINT
470 GOTO1280
480 REM   SYMBOLS TEST
490 PRINT"[illegible]
495 REM ↑ SYMBOLS TEST
500 PRINT
510 Z1=FNR(30):Z2=FNR(2)
520 PRINT"[illegible]
525 REM ↑ CHEMICAL
530 ONZ2GOTO610
540 PRINTS$(Z1)
550 INPUT A$
560 IFA$<>E$(Z1)THENPRINT"[illegible]
    THE ANSWER IS "E$(Z1):GOTO580
565 REM ↑ WRONG
570 PRINT"[illegible]
575 REM ↑ CORRECT
580 GOSUB1310
590 ONJGOTO160
600 GOTO490
610 PRINTE$(Z1)
620 INPUT A$
```

```
630 IFA$<>S$(Z1)THENPRINT" |
    THE ANSWER IS "S$(Z1):GOTO580
635 REM ↑ WRONG
640 PRINT"
645 REM ↑ CORRECT
650 GOTO580
660 REM     ELEMENT ORDER TEST
670 PRINT"               :REM ↑
680 FORY=1TO20
690 PRINT"ELEMENT"Y"IS ;
695 REM ↑ E
700 INPUTA$
710 IFA$<>E$(Y)ANDA$<>S$(Y)THENPRINT
     |":GOTO730
715 REM ↑ WRONG
720 PRINT"
725 REM ↑ CORRECT
730 X$=" +STR$(Y)+" IS "+E$(Y)+" ("+S$(Y)+")
740 IFLEN(X$)<25THENX$=X$+" ":GOTO740
750 PRINTTAB(15)X$"
760 NEXTY
770 GOTO1260
780 REM              ATOMIC NUMBER TEST
790 PRINT"
800 PRINT"
810 PRINT"
815 REM ↑ CHEMICAL
820 Z1=FNR(20):Z2=FNR(2)
830 ONZ2GOTO860
840 PRINTS$(Z1)
850 GOTO870
860 PRINTE$(Z1)
870 INPUT" HAS AT NO ";A$
875 REM ↑ HAS AT NO
880 IFVAL(A$)=A(Z1)THENPRINT" ":GOTO900
885 REM ↑ CORRECT
890 PRINT" | IT IS"A(Z1)
895 REM ↑ WRONG
900 GOSUB1310
910 ONJGOTO160
920 GOTO790
930 REM     ELECTROCHEMICAL ORDER
940 PRINT"
950 PRINT"MOST REACTIVE FIRST"
960 FORY=1TO17
970 PRINT"NO"Y" IS ";
975 REM ↑ NO
980 INPUTA$
990 IFA$<>EC$(Y)ANDA$<>ES$(Y)THENPRINT"
     |":GOTO1010
995 REM ↑ WRONG
1000 PRINT"
1005 REM ↑ CORRECT
1010 X$=" +STR$(Y)+" IS "+EC$(Y)+"
     ("+ES$(Y)+")"
1020 IFLEN(X$)<25THENX$=X$+" ":GOTO1020
1030 PRINTTAB(12)X$"
1040 NEXTY
1050 GOTO1260
1060 REM              ELECTROCHEMICAL CHARGES
1070 PRINT"
1080 PRINT"
1090 Z1=FNR(17):Z2=FNR(2)
1110 PRINT"CHARGE FOR ";
1115 REM ↑ CHARGE FOR
1120 ONZ2GOTO1150
1130 PRINTES$(Z1);
1140 GOTO1160
1150 PRINTEC$(Z1);
1160 PRINT" IS"
1170 INPUTA$
1180 IFA$<>C$(Z1)THENPRINT" |
     IT WAS "C$(Z1):GOTO1200
1185 REM ↑ WRONG
1190 PRINT"
1195 REM ↑ CORRECT
1200 GOSUB1310
1210 ONJGOTO160
1220 GOTO1070
1230 REM  QUIT
1240 PRINT"CHR$(142)CHR$(9)
1250 END
1260 PRINT"PRESS " TO RETURN TO MENU"
1265 REM ↑ PRESS SPACE TO RETURN TO MENU
1270 POKE198,0
1280 GETA$
1290 IFA$<>CHR$(32)THENGOTO1280
1300 GOTO160
1310 PRINT"PRESS
     " FOR MENU ANOTHER TO CONT"
1315 REM ↑ PRESS SPACE FOR MENU ANOTHER TO CONT
1320 POKE198,0
1330 GETA$
1340 IFA$=""THENGOTO1330
1350 J=0
1360 IFA$=CHR$(32)THENJ=1
1370 RETURN
1380 :
1390 REM  ELEMENTS
1400 :
1410 DATAHYDROGEN,"|",1          :REM H
1420 DATAHELIUM,"E",4            :REM HE
1430 DATALITHIUM,"LI",7          :REM LI
1440 DATABERYLLIUM,"|E",9        :REM BE
1450 DATABORON,"|",11            :REM B
1460 DATACARBON,"-",12           :REM C
1470 DATANITROGEN," ",14         :REM N
1480 DATAOXYGEN,"T",16           :REM O
1490 DATAFLUORINE,"-",19         :REM F
1500 DATANEON,"E",20             :REM NE
1510 DATASODIUM,"A",23           :REM NA
1520 DATAMAGNESIUM,"G",24        :REM MG
1530 DATAALUMINIUM,"L",27        :REM AL
1540 DATASILICON,"I",28          :REM SI
1550 DATAPHOSPHOROUS,"T",31      :REM P
1560 DATASULPHUR,"",32           :REM S
1570 DATACHLORINE,"L",35.5       :REM CL
1580 DATAARGON,"R",40            :REM AR
1590 DATAPOTASSIUM,"",39         :REM K
1600 DATACALCIUM,"A",40          :REM CA
1610 :
1620 REM THESE ELEMENTS ARE NOT IN THE
     FIRST 20 BUT ARE USED FOR THE ELECTRO
1630 REM CHEMICAL SERIES.
1640 :
1650 DATAZINC,"N"                :REM ZN
1660 DATAIRON,"E"                :REM FE
1670 DATALEAD,"B"                :REM PB
1680 DATACOPPER,"U"              :REM CU
1690 DATAMERCURY,"G"             :REM HG
1700 DATASILVER,"G"              :REM AG
1710 DATAHYDROXIDE,"|"           :REM OH
1720 DATAIODINE,""               :REM I
1730 DATABROMINE,"R"             :REM BR
1740 DATASULPHATE,"4"            :REM SO4
1750 :
1760 REM  ELECTROCHEMICAL SERIES
1770 :
1780 DATA19,+
1790 DATA20,2+
1800 DATA11,+
1810 DATA12,2+
1820 DATA13,3+
1830 DATA21,2+
1840 DATA22,2+
1850 DATA23,2+
1860 DATA1,+
1870 DATA24,2+
1880 DATA25,2+
1890 DATA26,+
1900 DATA27,-
1910 DATA28,-
1920 DATA29,-
1930 DATA17,-
1940 DATA30,2-
1950 :
1960 REM  CONTROL CHARACTERS USED
1970 :
1980 REM " CRSR UP
1990 REM " CRSR DOWN
2000 REM " CRSR RIGHT
2010 REM " CRSR LEFT
2020 REM " CRSR HOME
2030 REM " CLEAR SCREEN
2040 REM " WHITE
2050 REM " LIGHT GREEN
2060 REM " DARK GREY
2070 REM " ORANGE
2080 REM " RVS ON
2090 REM " RVS OFF
```

No axis to grind

Ian Trout draws a new angle on graph plotting for the 16K Spectrum

Graphplot will draw any cube, square or straight line graph. You must input four values for the equation while an 8×8 section of a 99×99 graph is selected and displayed on screen.

Once the graph has been drawn, several sets of options are given. I have included an overplot option for all those A/O level maths students who, like me, would often like to know what two graphs would look like when superimposed on each other.

Program Notes

5	Sets screen colours
100-120	Defines user-defined graphics.
490-500	Prints out a fresh equation
510-680	Values for the equation are input.
700-730	E$ is worked out and printed.
1000-1010	Draw screen
2000-2085	The x and y starting points are input.
3010-3070	Plot graph
4000-4030	Quit routine
4040-4090	Display second set of options
9900-9920	Save graph Screen$

Variables

z v	— counters
w=1	— when overplotting one graph with another
a,b,c,k	— input values for equation
x	— horizontal section
y	— vertical section
r	— answer x to equation
e$	— holds equation in full form
t$	— input title for screen save

```
   5 BORDER 0: PAPER 7: INK 0: CLS
  10 REM [redacted]
  15 REM [redacted]
  20 REM [redacted]
 100 FOR z=144 TO 145: FOR v=0 TO 7: READ a: POKE USR CHR$ z+v,a: NEXT v: NEXT z
 110 DATA 112,16,32,64,112,0,0,0
 120 DATA 112,16,112,16,112,0,0,0
 490 CLS : LET w=0
 500 PRINT AT w,9;"y=Ax³+Bx²+Cx+K"
 510 INPUT "Value of A=",a
 520 IF a>99 OR a<-99 THEN BEEP .1,0: GO TO 510
 540 PRINT AT 1,0;"A=",a
 550 INPUT "Value of B=",b
 560 IF b>99 OR b<-99 THEN BEEP .1,0: GO TO 550
 580 PRINT AT 3,0;"B=",b
 600 INPUT "Value of C=",c
 610 IF c>99 OR c<-99 THEN BEEP .1,0: GO TO 600
 630 PRINT AT 5,0;"C=",c
 650 INPUT "Value of K=",k
 660 IF k>99 OR k<-99 THEN BEEP .1,0: GO TO 650
 680 PRINT AT 7,0;"K=",k
 700 LET e$="y="+(STR$ a+"x³+" AND a<>0)+(STR$ b+"x²+" AND b<>0)+(STR$ c+"x+" AND c<>0)+(STR$ k AND k<>0)
 703 IF e$="y=" THEN BEEP .1,0: CLS : GO TO 500
 705 IF e$(LEN e$)="+" THEN LET e$=e$( TO LEN e$-1)
 710 FOR v=1 TO 7 STEP 2: PRINT AT v,0;"     ": NEXT v
 720 PRINT AT w,9;"                       "
 730 PRINT AT w,(32-LEN e$)/2,e$
1000 IF w=1 THEN GO TO 3000
1010 PLOT 52,24: DRAW 130,0: DRAW 0,130: DRAW -130,0: DRAW 0,-130
2000 INPUT "Start point on x-axis ",x
2010 IF x<-99 OR x>91 THEN BEEP .1,0: GO TO 2000
2030 FOR v=0 TO 8 STEP 2: PRINT AT 19,8+v*2-LEN STR$ x+1,x+v: NEXT v
2040 LET z=-1: FOR v=53 TO 190 STEP 16: PLOT v,23: DRAW 0,-2: LET z=z+1: IF x+z=0 THEN PLOT v,23: DRAW 0,129
2045 NEXT v
2050 INPUT "Start point on y-axis ",y
2060 IF y<-99 OR y>91 THEN BEEP .1,0: GO TO 2050
2080 FOR v=0 TO 8: PRINT AT (8-v)*2+2,7-LEN STR$ y;y+v: NEXT v
2090 LET z=-1: FOR v=25 TO 160 STEP 16: PLOT 52,v: DRAW 2,0: LET z=z+1: IF y+z=0 THEN PLOT 52,v: DRAW 128,0
2095 NEXT v
3010 LET z=0: FOR v=x TO x+8-0.0625 STEP 0.0625
3020 LET r=(a*(v*v*v))+(b*(v*v))+(c*v)+k
3050 IF r<y+8 AND r>y THEN PLOT (v-x)*16+53,(r*16)+25+(-y*16): LET z=z+1
3060 NEXT v
3070 IF z=0 THEN PRINT AT 20,1;"Not on this section of graph": PAUSE 0: GO TO 4000
3100 PRINT AT 20,0;"P - Printer        C - Continue",TAB 4;"S - Save Screen to tape"
3120 IF INKEY$="P" OR INKEY$="p" THEN COPY : GO TO 3100
3125 IF INKEY$="C" OR INKEY$="c" THEN GO TO 4000
3130 IF INKEY$="S" OR INKEY$="s" THEN GO TO 9900
3140 GO TO 3100
4000 PRINT AT 20,0;"                                "
4005 PRINT AT 21,0;"Do you want to quit program(y/n)"
4010 IF INKEY$="y" OR INKEY$="Y" THEN STOP
4020 IF INKEY$="N" OR INKEY$="n" THEN GO TO 4040
4030 GO TO 4010
4040 IF w=1 THEN GO TO 490
4050 PRINT AT 20,0;"C-Change equation   O-Overplot      L-Leave equation intact"
4060 IF INKEY$="C" OR INKEY$="c" THEN GO TO 490
4070 IF INKEY$="O" OR INKEY$="o" AND w=0 THEN LET w=1: PRINT AT 20,0;"                                ": GO TO 500
4080 IF INKEY$="L" OR INKEY$="l" THEN CLS : LET w=0: PRINT AT 0,(32-LEN e$)/2,e$: GO TO 1000
4090 GO TO 4050
9900 INPUT "Title ? ",t$: IF t$="" OR LEN t$>8 THEN BEEP .1,0: GO TO 9900
9910 SAVE t$SCREEN$
9920 GO TO 3100
```

```
            y=1x³+2
            y=1x²
 5
 4
 3
 2
 1
 0
-1
-2
  -4  -2   0   2   4
P - Printer        C - Continue
    S - Save screen to tape
```

```
            y=1x+-2
            y=-1x²
 2
 1
 0
-1
-2
-3
-4
-5
-6
  -4  -2   0   2   4
P - Printer        C - Continue
    S - Save Screen to tape
```



Still of Buster Keaton from The General © Raymond Rohauer 1984

Try pulling a stunt like this on your Spectrum

Leap on a moving train … jump from carriage to carriage … duck under fast-approaching bridges.

But before you do *anything*, make sure it's with Sinclair's new action-packed game – 'Stop the Express'.

That way you can try dramatic feats like Buster Keaton's – without risking your neck!

'Stop the Express' is one of five exciting new games from Sinclair. Its graphics are superbly fast and sharp. The action is non-stop. And the challenge is a very tough one.

On top of a racing express, you're chased by knife-throwing bandits. And inside the express, there's even more trouble.

Will you ever get to the front and halt the train? Or will you be well and truly bumped off?

All five new Sinclair titles – Stop the Express, Bubble Buster, Zipper Flipper, Eric and the Floaters and Driller Tanks – are for a 48K Spectrum. You'll find them in the shops – today.

At only £5.95 each, they're destined to be big stars on the small screen!

Selected Sinclair software lines are available from WH Smith computer stores, larger branches of Boots, John Menzies, Greens and most other software stockists nationwide.

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Spectrum Graphics the Best Ever!

A good fit

***A Fennell** presents a simple program for the calculation of the line of best fit*

This program will be useful for maths and statistics students. It determines the gradient and intercept on the y axis (when $x = 0$) for the line of best fit up to maximum of 20 points, using the least squares method

The maximum number of points could be changed by altering the *Dim* statements at line 100 and the test condition at line 170

Notes

10-70	Title
80 280	Input point number
290-560	Set up values of x and y
570-610	Position and draw axes
620-710	Plot points
720-740	Repeat

```
10 REM PROGRAM BY A.FENNELL
20 CLS
30 MODE 7
40 PRINT TAB(11,5);CHR$(141);'LEAST'
50 PRINT TAB(11,6);CHR$(141);"LEAST"
60 PRINT TAB(10,10);CHR$(141);'SQUARES
70 PRINT TAB(10,11);CHR$(141);"SQUAAES
80 Z$=INKEY$(300)
90 CLS
100DIM X(20):DIM Y(20)
110HIGHX=0:HIGHY=0:LOWX=0:LOWY=0
120EXX=0:EXY=0
130CLS:MODE 7:SUMX=0:SUMY=0:SUMXSQ=0:SUMXY=0
140 PRINT "THIS PROGRAM WILL CALCULATE THE LINE OF BEST FIT BY THE METHOD OF L
EAST SQUARES FOR YOUR DATA "
150PRINT TAB(0,4);"HOW MANY POINTS DO YOU WISH TO ENTER     (MAX=20)";
160INPUT N
170 IF N>20 THEN CLS:GOTO 150
180 CLS
190PRINT TAB(10,5);"Y         X"
200FOR I=1 TO N
210PRINT TAB(1,1);"INPUT POINT Y ";I;"   ";
220 INPUT Y1:Y(I)=Y1
230 PRINT TAB(1,1),SPC(25)
240 PRINT TAB(10,5+I);Y1
250 PRINT TAB(1,1);"INPUT POINT X ";I;"   ";
260INPUT X1:X(I)=X1
270PRINT TAB(17,5+I);X1
280 PRINT TAB(1,1);SPC(25)
290REM SET UP HIGHEST AND LOWEST VALUES OF X AND Y
300 IF X1>HIGHX THEN HIGHX=X1
310IF X1<LOWX THEN LOWX=X1
320 IF Y1>HIGHY THEN HIGHY=Y1
330 IF Y1<LOWY THEN LOWY=Y1
340SUMX=SUMX+X1
350SUMY=SUMY+Y1
360SUMXSQ=SUMXSQ+X1^2
370SUMXY=SUMXY+X1*Y1
380NEXT I
390 PRINT TAB(0,30);"PRESS C TO CONTINUE OR  R  TO RE-ENTER  DATA";
400 INPUT Z$
410 IF Z$="R" THEN GOTO 110
420R=N*SUMXSQ-(SUMX)^2
430A=(N*SUMXY-SUMX*SUMY)/R
440B=(SUMXSQ*SUMY-SUMX*SUMXY)/R
450CLS:MODE 4
460 VDU 19,1,3,0,0,0
470 VDU 19,0,4,0,0,0
480REM
490RANGEX=HIGHX-LOWX
500RANGEY=HIGHY-LOWY
510IF RANGEX>1000 THEN EXX=EXX+1:RANGEX=INT(RANGEX/10):GOTO 510
520IF RANGEY>1000 THEN EXY=EXY+1:RANGEY=INT(RANGEY/10):GOTO 520
530REM
540PRINT TAB(1,2);"GRADIENT=";A
550PRINT TAB(1,1);"INTERCEPT=";B
560 REM
570 REM POSITION AND DRAW AXES
580IF LOWX>0 THEN A1=0 ELSE A1=0-LOWX
590IF LOWY>0 THEN A2=0 ELSE A2=0-LOWY
600PLOT 69,A1,0:DRAW A1,1000:PLOT 69,0,A2:DRAW 1000,A2
610REM
620REM PLOT THE POINTS
630FOR I=1 TO N
640PLOT 69,INT(X(I)/10^EXX)+A1,INT(Y(I)/10^EXY)+A2
650NEXT I
660REM
670REM DRAW THE LINE
680P1X=INT(HIGHX/10^EXX):P1Y=INT((A*HIGHX+B)/10^EXY)
690PLOT 69,P1X+A1,P1Y+A2
700P2X=INT(LOWX/10^EXX):P2Y=INT((A*LOWX+B)/10^EXY)
710DRAW P2X+A1,P2Y+A2
720 PRINT TAB(24,20);"AGAIN";
730 INPUT A$
740 IF A$="YES" OR A$="Y" THEN GOTO 100 ELSE STOP
```

Open Forum

Open Forum is for you to publish your programs and ideas. Take care that the listings you send in are all bug-free. Your documentation should start with a general description of the program and what it does and then give some detail of how the program is constructed. We will pay the _Program of the Week_ double our new fee of £6 for each program published.

Gardener

on Vic20

In this arcade style program the object of the game is to mow the grass whilst keeping clear of the explosive cricket balls and rocks which, if hit, will end your game.

You move your mower using the following keys: f1 – up, f3 – down, 'z' – left, c – right.

Throughout the game the score and the current hi-score are shown.

Program Notes

10-210	Instructions
220-420	Set up screen
430-530	Move mower
540-550	Check what mower has hit
570-590	Print score, hi-score and lawn number

```
10 PRINT"J" GOSUB860
20 CL=36879 POKECL 154 HI=0 S1=36876 V=36878 POKEV,15
30 PRINT"     **GARDENER**"
40 PRINT"
50 PRINT"YOU ARE A GARDENER ANDHAVE TO MOW AS MANY   LAWNS AS POSSIBLE."
60 PRINT"HOWEVER THERE ARE      OBSTACLES IN YOUR WAY ...."
70 PRINT"ROCKS AND CRICKET BALLS."
80 PRINT"YOU GET 10 POINTS FOR EACH CLUMP OF GRASS   YOU MOW"
90 PRINT"AND GET 10 EXTRA       POINTS FOR EVERY LEVELABOVE 1"
100 PRINT"KEYS ARE "
110 PRINT" Z -LEFT---- C -RIGHT"
120 PRINT" F1 -UP----- F3 -DOWN"
130 PRINT"PRESS ANY KEY"
140 GETA$ IFA$=""THEN140
150 PRINT"TYPE IN SPEED OF PLAY"
160 PRINT"1-9 (9 IS THE SLOWEST)"
170 INPUTZ
180 IFZ<1ORZ>9ORINT(Z)<>ZTHEN150
190 Z=Z*10
200 PRINT"PRESS ANY KEY"
210 GETA$ IFA$=""THEN210
220 FORA=1TO8 READB,C POKES1,B FORB=1TOC NEXT POKES1,0 NEXT
230 PO=0 L=1 PI=10 SC=0 K=37
240 R=10 CO=30720 S=7725 CU=7777
250 POKE36878,15 POKECL,90 PRINT"" POKE36869,255
260 FORA=7702TO7723 POKEA,40 POKECO+A,0 NEXT
270 FORA=8164TO8126 POKEA,40 POKECO+A,0 NEXT
280 FORA=7724TO8164STEP22 POKEA,40 POKECO+A,0 NEXT
290 FORA=7723TO8186STEP22 POKEA,40 POKECO+A,0 NEXT
300 FORA=1TOP
310 C=INT(RND(1)*434) D=S+C
320 IFPEEK(D)<>32ORD=CUTHEN310
330 POKED,38 POKED+CO,0
340 C=INT(RND(1)*434) D=S+C
350 IFPEEK(D)<>32ORD=CUTHEN340
360 POKED,39 POKED+CO,1
370 NEXT
380 W=20 PO=0
390 FORA=1TOW
400 C=INT(RND(1)*434) D=S+C
410 IFPEEK(D)<>32ORD=CUTHEN400
420 POKED,33 POKED+CO,6 NEXT
430 POKECU,K POKECU+CO,0
440 POKES1,200 GETA$ FORT=1TOZ NEXT POKES1,0
450 IFA$="Z"THENPO=1 K=36
460 IFA$="C"THENPO=2 K=37
470 IFA$="" THENPO=3 K=35
480 IFA$="" THENPO=4 K=34
490 POKECU,32
500 IFPO=1THENCU=CU-1
510 IFPO=2THENCU=CU+1
520 IFPO=3THENCU=CU-22
530 IFPO=4THENCU=CU+22
540 IFPEEK(CU)=38ORPEEK(CU)=39ORPEEK(CU)=40THEN720
550 IFPEEK(CU)=33THENGOSUB630
560 IFSC>HITHENHI=SC
570 PRINT"SC*+ "SC
580 PRINT"HI*+ "HI
590 PRINT"L
```

```
600 POKECL,90
610 IFW=0THENGOSUB650
620 GOTO430
630 SC=SC+P1 POKECU,K POKECU+CO,0 W=W-1 POKECL,92 FORSO=130TO250 POKES1,SO NEXT
POKES1,0
640 RETURN
650 L=L+1 PI=PI+10 R=5
660 IFL<>5THENGOTO300
670 FORSO=1TO100 POKES1,234
680 SC=SC+10 IFSC>N1THENH1=H1+10
690 PRINT"SC PRINT"H1 POKES1,0
700 NEXT
710 GOTO300
720 FORSO=250TO130STEP-1 FORT=1TO30 NEXT POKES1,SO NEXT POKES1,0
730 POKE36869 240 POKECL,154
740 PRINT"SORRY BUT YOUR MOWERS BLADES ARE BROKEN."
750 PRINT"BUT YOU MADE IT            TO LAWN'L
760 PRINT"SCORE"SC
770 IFSC=HITHENPRINT"YOU GOT TODAYS HI SCORE"
780 PRINT"HI SCORE"H1
790 PRINT"ANOTHER GO (Y/N)"
800 GETA$ IFA$<>"Y"ANDA$<>"N"THEN800
810 IFA$="N"THEN850
820 IFA$="Y"THENPRINT"PRESS ANY KEY"
830 GETA$ IFA$=""THEN830
840 GOTO230
850 POKECL,27 PRINT"" END
860 FORI=7168TO7824 POKEI PEEK(I+25600) NEXT
870 FORC=7432TO7527 READA POKEC,A NEXT
880 DATA168 104,42,172,105.42 42,60
890 DATA129,126,24 24,255,129,129,255
900 DATA255,129,129,255,24,24,126,129
910 DATA241,146,146,158,158,146,146,241
920 DATA143,73,73,121,121,73,73,143
930 DATA60,126,251 247,239,223,126,60
940 DATA0,48,200,134,165,66,52,24
950 DATA255,129,129,129,129,129,129,255
960 DATA255 171,171,139 171,171,171,255,255,136,107,139,235,235,136,255
970 DATA255 136,170,168,170,170,138,255,255,143,191,159,191,191,143,255
980 DATA175,150.175,150,175,150,151,000,163,150,163,150,163,150,147.000
990 POKE52,28 POKE56,28
1000 RETURN
```

Gardener
by Paul Turton

Typewriter

on Commodore 64

This program works with a 64 and 1520 printer plotter — it will enable you to use your computer as a four colour typewriter

Program Notes

100 111	Sets Printer
112 113	Input character size
120	Repeat keys
130	Prints character
140 148	Check keys pressed
150	Returns to 140

Return will move the printer down a line.

```
90 REM ******************************
91 REM *THIS PROGRAM TURNS YOUR CBM64*
92 REM *AND COMMODORE 1520 PRINTER / *
93 REM * PLOTTER INTO A FOUR COLOUR  *
94 REM *         TYPEWRITER          *
95 REM ******************************
100 OPEN4,6
110 OPEN3,6,3
111 OPEN2,6,2
112 INPUT"CHARACTER SIZE",I
113 IFI>3 OR I<0THEN 112
120 POKE650,PEEK(650) OR 128
130 PRINT#3,I
140 GETA$.IFA$="" THEN150
142 IFA$="2"THENPRINT#2,0:REM BLACK
144 IFA$="↑"THENPRINT#2,2.REM GREEN
146 IFA$="∠"THENPRINT#2,3.REM RED
148 IFA$="←"THENPRINT#2,1.REM BLUE
150 PRINT#4,A$;
160 GOTO140
```

Typewriter
by Neil Green

Chess Clock

on BBC

When you get bored of beating your computer at chess you may like to challenge your fellow human beings. This chess clock is for the BBC B but can easily be converted to any computer.

Program Notes

line 90	This hides the cursor
line 100	This checks to see if the End of game flag E has been set by line 230
line 120	This checks to see if any key has been pressed. If so then N is changed N=0 means that White is thinking
lines 170-200	Convert Tsecs into Hours:Mins:Secs adding leading zeroes where necessary
line 230	Draws a chessboard when 64secs remain. The board disappears square by square as time is consumed in line 240

```
10MODE1:COLOUR134:COLOUR0
20VDU23,225,170,85,170,85,170,85,170,85
30VDU23,224,255,129,129,129,129,129,129,255
40VDU23,226,0,0,0,0,0,0,0,0
50CLS:PRINTTAB(10,12)"Who is playing White?":INPUTTAB(10,13) W$:PRINTTAB(10,1
5)"Who is playing Black?":INPUTTAB(10,16) B$
60PRINTTAB(0,20)"How many mins will White have"::INPUT WT:WT=WT*60:PRINTTAB(0
,22)"How many minutes will Black have"::INPUT BT:BT=BT*60
70CLS:PRINTTAB(0,20)B$",PRESS ANY KEY TO START ":PRINTW$"'S CLOCK":G=GET
80CLS:PRINTTAB(5,1)"White":PRINTTAB(5,2)W$:PRINTTAB(5,6)"TIME LEFT":PRINTTAB(
25,1)"BLACK":PRINTTAB(25,2)B$:PRINTTAB(25,6)"TIME LEFT"
90TIME=0:N=0:E=0:VDU23;10,32,0;0,0;
100PROCtime:IF E=1 THEN 140
110IF TIME<100THEN GOTO120ELSE TIME=0:IF N=1THEN BT=BT-1 ELSE WT=WT-1
120IF INKEY(2)<>-1 THEN TIME=0:N=N EOR 1:SOUND1,-15,222,2
130GOTO100
140CLS:T=TIME:REPEAT PRINTTAB(4,11);"BAD LUCK "L$", YOU'VE LOST ON TIME":VDU7:
UNTIL TIME=T+300:RUN
150DEFPROCtime
160IF N=0 THEN T=WT:PLACE=5:TLEFT=5ELSE T=BT:PLACE=25:TLEFT=25
170T1=T DIV 60:T2=T MOD 60:T3=T1 DIV 60:T4=T1 MOD 60
180IF T2<10THEN T2$="0"+RIGHT$(STR$(T2),1)ELSE T2$=RIGHT$(STR$(T2),2)
190IF T3<10THEN T4$="0"+RIGHT$(STR$(T4),1)ELSE T4$=RIGHT$(STR$(T4),2)
200T$=STR$(T3)+":"+T4$+":"+T2$
210PRINTTAB(PLACE,8)T$
220IF T>64THEN ENDPROC
230IF T=64THEN COLOUR1:FOR M=0TO6STEP2:FOR L=0TO6STEP2:PRINTTAB(TLEFT+L,15+M);
CHR$(224);CHR$(225):PRINTTAB(TLEFT+L,16+M)CHR$(225);CHR$(224):NEXT:NEXT:ENDPROC
240IF T>0THENPRINTTAB(TLEFT+(T MOD 8),15+(T DIV 8))CHR$(226):ENDPROC
250E=1:IF N=0THEN L$=W$ ELSE L$=B$
260ENDPROC
```

Chess Clock
by Tim Love

Microradio

GW6JJN

Floor space

An attempt now to catch up with all the mail sent to the column. A personal reply to a query or letter will need a stamped addressed envelope. I cannot always reply with a personal letter although I do my best.

A letter has been received from a company called Softest who wish to inform ZX81 and Spectrum owners that they now produce the hardware and software necessary to use the ASR33 type teletypes as a computer printer. These old teletype machines are appearing in larger and larger quantities as the various concerns that used teletype systems, such as the Post Office, are selling them off for very small sums indeed. I have often seen them on offer at the various radio rallies that occur throughout the year. So if you can give desk (or floor) space to one of these friendly beasts then they can now be used directly from the computer. They are not very fast machines, in fact they can be like watching paint dry beside the modern dot matrix machines, but they have the advantage of being cheap and giving a reasonable print quality. Softest can be reached at 10 Richmond Lane, Romsey, Hants SO5 8LA.

To answer the people who wrote to me asking for more information on how and what is needed to get going in packet radio, the address to write to is in America: The Tucson Amateur Packet Radio Corporation, PO Box 22888, Tucson, Arizona, 85734, USA. One interesting letter on the subject of packet radio came from Harald Holt G4/LA8WJ who lives in Kent. He is keen to get involved in Packet Radio and being both an amateur and a professional datacommunications engineer has a great deal of expertise to offer anyone attempting to set up a packet system. Microradio is keen to hear from anyone who has any experience in packet radio or anyone who is really keen to get a packet group set up so that we can get the show on the road in Europe. There is obviously a great deal of enthusiasm, evidenced by the number of letters on the subject. One example of this is a letter received from R J Liethof of Amsterdam who is keen to get further information. The only advice I can give is to keep reading this column.

Several people have written to me asking about implementing Morse or Radio Teletype on the Vic 20 computer and I'm afraid I have to answer that I don't know of any software in this line for the Vic. If anyone has any Vic 20 software or listings, please write in.

Mr G Craddock of Hartshill Staffs wrote asking for help with a Maplin Modem he had purchased only to find that the basic program supplied by Maplin did little more than send data and characters to the screen. Obviously more sophisticated software is needed for the Dragon 32 to be used with the Maplin Modem, since the purchase of a modem does to some extent suggest that it may be used for bulletin boards, etc. If anyone can help (including Maplin) then please drop a line to Microradio.

Ray Berry GW6 JJN

This series of articles is designed for radio and microcomputer enthusiasts alike. If you have any queries that you want answered, hints and tips to share or topics that you would like to see covered write to Ray Berry, Microradio, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD.



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Open Forum

Screen Dump

on Dragon

A lot of Dragon users have CGP 115 plotters The problem is that there is no screen copy command The CGP 115 has horizontal and vertical axis of 480 pixels as opposed to 255.

This program overcomes this problem by allowing the paper width to be stretched (or squashed) — change the number 1 8784 to 1 5 or 2.5 on one axis, otherwise an enlargement results

The design is shown as a series of dots on the paper but the picture is still clear Use the colour select to print the design Be prepared to wait — this painting by numbers takes up to 30 minutes

```
1 REM ***************
2 REM * SCREEN DUMP *
3 REM * TO  CGP-115 *
4 REM * M. HARRISON *
5 REM ***************
10 CLS
20 INPUT"WHAT PMODE?";P PMODE P
30 INPUT"WHAT IS THE COLOUR
CODE OF THE BACKGROUND";B
40 INPUT"WHICH SCREEN,SC
50 SCREEN1,SC
60 PRINT#-2,CHR$(18)
70 FOR Y=0 TO 191
80 FOR X=0 TO 255
90 U=PPOINT(X,Y)
100 IF U<>B THEN GOSUB 150
110 NEXT X
120 NEXT Y
130 PRINT#-2,'A"
140 PRINT#-2,STRING$(3,10)'END
150 PRINT#-2,"M';(X*1.0784);
",";-(Y*1.87 84)
160 PRINT#-2,"J1,1'
170 RETURN
```

Screen Dump
by Mark Harrison

Arcade Avenue

Charm of the original

Several new versions of old arcade favourites have been released recently but under such obscure names that people looking for copies of familiar games, or trying to avoid them, may be confused I thought that every so often I would run through what's what amongst the latest games so that you can find out what you are buying I couldn't say whether it's due to fear of the copyright laws or guilt about their lack of new ideas that leads companies to dream up such peculiar names

Anyway, recently there have appeared a rash of *Buck Rogers* type programs, notably *Quasar* from Voyager Software and *Megahawk* from Big G, both for the Commodore 64 *Blade Alley* has also been released for the Spectrum from PSS It's no surprise that the Commodore games have the edge graphically, but *Blade Alley* is a superb piece of programming and is reasonably faithful to the original, although with less screens to get through Of the other two, *Megahawks* is least like the true *Buck Rogers* but probably has the best graphics

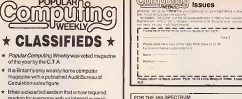
The main criticism of these games is that the 3D perspective makes them rather hard to play It can be almost impossible to judge accurately when your ship is on the same level as the aliens — scoring is as much by luck than judgement Still, this is also true of the original and I suppose it doesn't spoil the enjoyment

PSS have also released a version of the slightly obscure arcade game *Tempest* Like Atari's more recent *Star Wars* or the old chestnut *Asteroids* *Tempest* was produced using line vector graphics The PSS version hides behind the name *The Guardian* and involves spinning your triangular ship around the edge of a cube, from the centre of which radiate various alien dots and squiggles Needless to say you shoot them before they reach the edge It is a difficult game to explain but a simple one to play and it owed much of its orginal charm to speed and loud zappy noises Unfortunately, these two qualities are what the Spectrum most lacks but it is a fair attempt nevertheless

Finally for this week, *Bimbo* for the Spectrum from Joe the Lion is in fact a heavily disguised version of the game *Road Runner* The original was a bit like Ultimate's *TransAm* You drive your little racing car around a maze collecting cups and avoiding killer enemy cars A radar screen reveals the whereabouts of cups and the enemy, and you can leave trails of smoke at strategic points to delay the pursuing cars In *Bimbo* you are a rabbit looking for carrots in a maze You are constantly pursued by killer enemy rabbits and can drop apples to delay them You are also provided with (a wonderful concept) a carrot detecting radar The movement of this game is jerkier than the original but, to give it the benefit of the doubt, this is probably to simulate a rabbit s hops Unfortunately, the most enjoyable part about *Road Runner* was the perpetually playing, jazzy music so I would expect some better copies to appear on other machines, such as the Commodore.

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games If you have any comments, from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle Arcade Avenue *Popular Computing Weekly* 12 13 Little Newport Street, London WC2R 3LD



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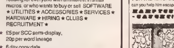
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Mike and Peter Gerrard are regular contributors to *Which Micro?* and *Personal Computer News*. Peter Gerrard is the author of many titles in the Duckworth Home Computing list, including the Exploring Adventures series, and contributes to *Popular Computing Weekly*, *Commodore Horizons* and *Micro Adventurer*.



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Tony Bridge's Adventure Corner



Urban horror!

Richard Shepherd is a name that has been on a lot of best-selling software, from the very beginning of the ZX81 through to the present crowded scene. Recently the company has branched out from the original Sinclair-only policy to encompass the Dragon and Commodore machines (with Commodore software available on disc).

Urban Upstart, written by Peter Cooke, is a text graphic adventure. The scenario is rather unusual, placing you, the heroine, in good old Scarthorpe from which you have to escape (why, I don't know!)

You wake early in the morning, in a pleasant little bedroom - in the room with you is a pair of dungarees. There a few locations ot be visited in the house, and some objects which you will need in your travels, but eventually you will have to venture forth from this oasis in the revolting town of Scarthorpe.

The game follows the usual procedure, with the adventurer exploring several locations, and finding the occasional object lying around. Buildings may be entered, but beware of the lorries standing invitingly empty. The jail is a bit of an enigma – the player is often thrown unceremoniously into a cell, but it is very easy to escape and this part of the scenario only wastes time. There is a version of the time-honoured Maze, but this time it is a Hospital. It can be the very devil to get out of, but then there is a simple way of avoiding the catastrophe.

What of the graphics? Well, they're quite nicely drawn but rather slow. This lends a certain suspense to the proceedings the first time round, but on subsequent visits to the location the whole process becomes rather boring and quite frankly I think a *Graphics On/Off* option should be provided.

Another detail that I think Spectrum authors have overlooked is the fact that when the adventurer has opened a door, or dropped an object at a certain location, the picture should, surely, reflect this and show the open door, or the object lying on the ground. It's a thing that American players have become used to, through programs like the Scott Adams graphic adventures *Blade of Blackpoole* and so on.

But, don't let all this put you off the adventure. The descriptions are rather terse but nevertheless the program fairly oozes atmosphere and to my mind atmosphere is one of the most important elements of a good adventure.

In passing, one of Richard's strongest beliefs gained from ploughing though many hundreds of "Help Me" letters is that a surprisingly large number of adventurers get stuck simply because they have not read the instructions! At the basic level it's obviously a good idea to see what commands the program will accept – don't assume that the usual commands will be recognised. Some adventures require the player to type out directions in full while others accept single-key entries.

Reading the instructions thoroughly may also yield up a clue or two, so take a moment or two in going through any instructions.

Incidentally, reviewers of adventures are always glad to have a solution included with the tape – initial locations can often be hard to crack and time is always limited!

Marco van Slegeren from Amsterdam is visiting Scarthorpe at the moment. On your travels Marco you may have been thrown into jail for indecent exposure. To get out of jail, you'll need the Hat from the Wastelands – to get past the Police Guard, just wait around for a while! The Red Tape is needed to get into the Town Hall. As for your question about *Smuggler's Cove*, you may find that the Slab will move if you "Push" it – I have a feeling that the lever by the Elevator may also move some impassable object.

James Arnold of Camberley is playing *Snowball*, and finds progress blocked by the Waldroid – to get past him

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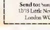
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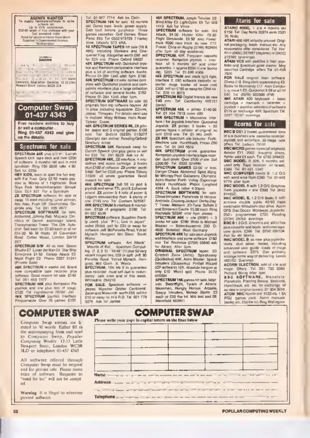
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VIC 20 boxed as new + C2N cassette + bits + s/w £175 Kevin Green Chertsey (09328) 65031

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VIC 20 + 200 games 16K Switchable expansion cassette recorder 2 cartridges Joystick dust cover cassette carry case boxed guaranteed Worth £1200 Any offers 01-571 0780

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CBM 64 with cassette recorder 1 month old 5 books + 8 games £360 Sale for £250 ono Tel 051 327 4668 (eves)

CBM 64 discs to swap. Tel Mick after 7pm 01 703 5691

CBM 64 + data cassette recorder Atari and trigger command joystick users guide and s/w Matrix Hover Bovver assemble + others, 10 months guarantee + insurance. £316 Tel Mold (0352) 770374

VIC 20 + C2N cassette cartridge + cassette games Dust cover books and mags £100 Tel Romford 27063

VIC 20, C2N 8K 16K Super Expander 4 slot switched Motherboard Joystick, Intro Basic Part 1 two cartridge games Over 30 cassette programs Vic and Compute mags £160 36 Lincoln Way Corby Northants

VIC 20 16K Rampack. Joystick books magazines and games and adventures of tape and cartridges Tape player Telephone 0532 538788 (Simon)

CBM 64 software Flight, Snooker Hexpert £4 each Arcadia DepthCharge £3 each Tel Michael Barker on 061 448 4242

COMMODORE Pet Software games and Business secondhand 0239 614329 for list.

SUPER EXPANDER plus Vic Graphics (Book) For Vic 20 Computer £25.00 Phone 0702 529431

VIC 20 Plus cassette unit, Super Expander and Machine Code Monitor cartridges £30 worth of books Joystick and lots of software Sell for £130 Winchester area phone Durley 258

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COMMODORE 64 + C2N cassette unit £200.00 Three months old Also Vic 20 Ram packs 16K £28.00 8K £30.00 Also games cartridges £5.00 each. Some Spectrum games Tel. 081 480 1646 after 5pm

CBM/PET complete set of Commodore CBM/Pet Rom chips Accept £30 the lot. Also some Ram chips. Will split or exchange (0244) 675717

VIC 20 SOFTWARE Jetpack (8K) £3. Andes Attack (8K) £3 Cosmic Fire Birds (8K) £4 Sub Space Striker (16K) £4 All originals Tel Durham (0385) 730 380 ask for Philip

16K VIC 20 C2N books, magazines, £160 ever Also £100 worth software. Will sell the games at half price or with computer etc. £160 ono Phone Michael Abingdon 31041 After 5pm.

VIC 20 16K Super Expander cartridge joystick books + lots of s/w £170 ono Tel Hemel Hempstead 60002. (eves)

VIC 20 + cassette deck + joystick cartridge and cassette s/w £110 ono Tel 01-845 6624

VIC 20 with cassette book intro to Basic I and £100 of s/w £110 ono Woking 70318 (eves)

VIC 20 + C2N, s/w and 3K expansion, as new £160.00 ono or exchange for 16 + 48K Spectrum Tel Stanstead 4669 (eves)

CBM 64 Simons Basic, tape unit, cassette player 7 books games, joystick etc £280 o/w Tel 01-681 2525

CBM64 + C2N cassette 4 extra hand books + 4 recent games inc Revenge of the Mutant Camels 2 months old boxed guaranteed £170 or 48K Spectrum + cash 01-474 1205

VIC 20 + 16K Ram + C2N + Expander Joystick, £100 worth of software selling for £150 Ring Medway 374310

ZX PRINTER with 5 rolls of paper with power pack with interface for VIC 20 or 64 Sell for £50 or exchange for 64 Simon's Basic. Tel. 01-476 7888 after 6pm John

VIC 20 cassette deck Arfon unit 16K 8K 3K prog Aid Machine Code Monitor Carts Joystick Duckshoot Prog ref guide Over 150 progs Basic II Basic many books bargain £250 ono Bodmin 391959

VIC 20 8K 3-SLOT Mother Board mint condition Cost £50 accept £30 ono Also Casio FX 700P cost £40 accept £20 which includes guide and program book. Telephone Russell 021 444 2035

VIC 20 CPU, C2N recorder 8K and 3K Rampacks Joystick, software, (cartridges + cassettes) ref guide 3 hand books tons of magazines £170 ono Tel Halifax (0422) 86696 after 6pm please

16K VIC 20 + C2N. Two Joysticks plus software mags and books £175 ono Tel (027587) 2781 and ask for Jon

COMMODORE 64 easy script word processor on disk unused, £30 Post paid Doncaster (0302) 81672 after 6pm



Wanted

SWAP SPECTRUM SOFTWARE many new titles including Pogo Jet Set, Willy Trash man Hurg Phone Courtney on 01 530 5220 anytime between five and seven

VIC 20 software unexp & exp swap or sell Tel (0978) 356122 Wrexham

SPECTRUM S/W sell or swap Colossal £6 Black Crystal £4 80 also Ultimate Senes Trashman Fred Jet Set Willy Want Transfer Phone Stephen (0703) 767560 between 4 30pm and 7 00pm

SWAP HONDA CM200T 'V' reg immaculate low mileage silver for printer Epsom FX80 RX80FT or similar Spectrum compatible considered Phone Chesterfield (0246) 209900 after 7pm

SWAP ATARI VHS for 48K Spectrum or will sell at £85 Tel (0248) 600 408

SPECTRUM PENPAL WANTED can swap software etc Write to Peter 377 Winchester Road Bassett Seton SO1 7DJ Hampshire Tel (0703) 767560

SWAP SPECTRUM SOFTWARE Fruit Machine Lothlorien Paras Devils of the Deep Star Trek K Tel Tomb of Dracula Rock n Roll The Orb Ship of Doom WHY Any 3 for est Quit A Fields Drumarg Park, Armagh City N Ireland

SWAP CBM 64 plus C2N cassette plus joystick Inern to Basic Ends of box 2 lenses old – proof of purchase. For any computer with built in monitor eg Sharp Tandy etc. Tel (0908) 59814 anytime

WANTED ZX PRINTER, 5pm pen will swap for Atari BCS mimas command Cartridge or will pay Mark – after 5pm Tel Crosskey 271564

80 S/W TAPES for sale or swap for Colour Genie Tel Slough 30224 after 8pm

WANTED CBM64 S W also Vic 20 will purchase broken 64 or Vic 20 machine for spares Tel Reading (0734) 23653

SWAP SPECTRUM menu minor for Knights Request Yours and 48K Melbourne draw for any level 9 adventure Yours. Please Ring (Scot) 058 799 216 with offers

SWAP 5 VIC 20 Cartridges, Jupsel lender Pirate Cave Zargon Chess, Cosmic Cruncher Realr Rat Race for Super Expander or 16K Rom Pack. Or will sell Hastings 422694

PHIPPS 97/00 WITH CARTRIDGE. Swap for any Spectrum or sell tial lot £25 00 Tel 01-837 5773 (eves.)

SWAP 12+12 Atom floating point and colour for ZX printer In good condition 01 549 1164 after 6pm Robert Hill

SWAP 365 OF ORIGINAL SPECTRUM S/W inc 3D space Transylvania Tower Chess Player Horace the Spider etc for ZX Printer Call 228 3546

WANTED CBM 64 in the region of £150 00 with s/w Tel Slough 39391 Mark Chelse

WANTED 2 48K SPECTRUM Reasonable price Case condition im aterial – needed for project. Luton 25989

WANTED BBC B 32K computer also printer Tel 0245 262712

WANTED ZX PRINTER interface for CBM 64 Tel 01574 4122 eves

ANYONE INTERESTED in taking part in a computer survey If interested Send address and stamp to Mr C Haine 4 Cord Lane Essenhall Rugby Warwicks CU23 0HZ. Results published in September 1984

WANTED CBM 1541 disk drive with diskette in good condition Will pay £138 and P&P Tel Belfast (0232) 619650 after 6pm

SWAP SPECTRUM (48K) Interface 1 microdrive Dk keyboard Currah U Speech £400 softwere cassette recorder books, manuals leads etc For Commodore 64 + C2N cassette unit + software Write to G Hawkins 50 Nicholls Court Thorplands Northampton NN3 1YP

WANTED SINCLAIR ZX printer good condition Will pay £10 Contact Pip Chapman Davios 1 Chaple Road Aldborough Norwich NR11 7NN Tel Cromer 761481

WANTED JUPITER ACE including manual and power supply Will pay up to £20 also interested in Jupiter Ace Rampak £10 Phone Chris on Rugby (0788) 532988 after 5pm please

WANTED ZX81 with Rampak. Also wanted printer for same Please contact Paul Newrock Farm Dymock, Glos Tel Dymock 386

SWAP SPECTRUM quickshot, joystick and programmable interface (Downsway) for H U R G games designer plus five pounds or sell £25 Ashbourn 70674 Andrew

DRAGON 32 wanted with software Tel Birmingham (021) 351 3458 after 5pm

EXCHANGE 48K SPECTRUM plus software plus cash for 1.2 O S BBC B with or without disc drive Phone (0407) 740464 North Wales.

SWAP SPECTRUM software 16K or 48K. Send your list for mine Mark 18 Seagrange Ave Baldoyle Dublin 13 Ireland P S Educational software needed badly!

SWAP SPECTRUM progs More than 250 titles Write to Patrick Dardour 18 Rue du Borrego 75020 Paris France or call Tel 366 52 83 after 8pm.

SWAP KEMPSTON Interface and quickshot joystick (good condition guaranteed) For any speech synthesiser Phone 907 1203 after 8 30pm

GAMES (SPECTRUM) to swap Alchemist Pyramid Ant Attack Splat, 3D Space Wars M Coder (compiler) English Literature (by Sinclair) Mines Out, Frenzy Ground Attack Gobble A Ghost. Tel Bristol (0272) 569590

WANTED BBC B for about £200 downwards A Com 64 with CN2 for about £150 downwards or a CN2 for £15 Phone after 6pm and ask for Joe 021-525-3270

WANTED PEN FRIEND who owns a 16/48K Spectrum to whom I can exchange programs with Write to A. Barry 92 Chester Road North Sutton Coldfield B73 6SL.

WANTED ZX81 Rampak £10 keyboard overlay for ZX81 £15 ZX81 printer £14 colour speech or any other add-ons for ZX81 Will pay £25 for 12K Atom or Aquarius Paul 334-5787

SWAP PHAROAH'S Tomb for Zaks Kingdom and swap Catcha Snatcha, Amok and Cyclons for any others All good condition Tel Dunblane (0786) 822912

WANTED Any 48K ZX Spectrum with leads manuals and power pack If possible (no tape recorder needed) Willing to pay £60-£70 Telephone 061-477-4885 Ask for Alan Phone after 6pm

SWAP My Spectrum 48K with Realistic tape recorder and £230 worth of games for Commodore 64 If interested phone 801-8938 (London)

EXCHANGE SINCLAIR SPECTRUM 48K issue 3 with £800 softwares for BBC 1.2 O S with any extras Tel Slough 42272 Eves

DRAGON SOFTWARE to swap Send a list of your titles to L J Maquez 16 Eastbrook Avenue Radcliffe Manchester Lancs M26 9RT

SWAP MY ATARI 400 (16K) with 1010 cassette recorder and games for Spectrum (48K) and printer or CBM 64 Write to "Chuck" 8 Brockenhurst Road Mansfield Notts NG19 6TX (make it quick!)

SWAP ATARI 400 16K and 410 program recorder pole position cartridge manuals and books Perfect condition for Cobra 148 GTLDX CB rig in good condition Tel 0703 798514 evenings

50 SPECTRUM ORIGINALS to swap including Krakatoa Doomsday Castle Hunter Killer etc Ring Moseley 9867 Simon after 4pm

MICRODRIVE OWNERS interested in networking activity in Multi User S/w etc Please write to Andrew Margenson 5 Odeon Parade North Watford Hertfordshire

SPECTRUM GAMES for sale on swap All originals Titles inc. Jet Set Willy Bugger Boo Wheelie Pyramid Zx Zoom Stonkers Penetrator etc. Tel Truro 72850 after 5 30 Peter

ATARI A800 and peripherals, etc Tel Luton (0582) 956124 evenings only

SPECTRUM SOFTWARE for sale Astro Blaster Trans AM Time-Gate Gulpman Gotcha All games as new £3 each or all five games for £14 Ring Cambridge 870555

ZX81 WITH four original cassettes, exchange for Spectrum 16K under £50 Tel 01-693 2913

SWAP MY SHARP GF8800, portable stereo with graphic equaliser and detachable speaker for printer suitable for Dragon Leave message with details of printer for attention of Dave Tel (0582) 665262.

SWAP ATARI SOFTWARE Cass or disc Ask for Stephen Tel 0724 845252

EXCHANGE DATEL SPECTRUM joystick interface (Kempston compatible) for Tasword Two or O C P address manager (originals only) Telephone Graham on Crawley (0293) 541988

ANYONE WHO KNOWS about ZX Spectrum machine code to exchange ideas or to show short machine code program Send SAE, J Brambery 7/4 Hay Edinburgh Scotland

18 SPECTRUM makers original cassettes to swap Seven for Currah Micro-Speech eight for I/O port two each for Apocalypse and Rock Star Raiders Tel (0962) 51791 weekend only Kevin.

NON-WORKING VIC 20 or CBM 64 for spares and repairs Maximum £25 depending on condition Phone St Helens 814148 after 5pm Alan's and Dragons also considered

WANTED, PENPAL with Spectrum to swap software give hints and tips in programmes etc Please write Chris Rainer 2 Mill Hill Road Hinckley Leicestershire LE10 0AY

CBM 64 +VC1541 Swap programs Write to Jacques de Jonque 68 Rue Richard Orban 4381 Heros Belgium. Tel 0181325336 I have more than 400 programs

HELP! Can anyone help me with a recording in Basicode from the BBC Chip Shop series (I have the conversion kit) I will pay all costs Tel (026379) 8861

WANTED! Will somebody supply my poor little VIC with audiogenic's fourth cartridge also Compute!'s "First Book of VIC" and finally Rabbit's "Myriad" A worried Vic owner Contact on 0658 822508

WANTED Disk drive and printer for Atari 800 Tel 834 2473 evenings

SWAP SIP 40 Arc welder plus extras for TI-99/4A mini memory and software For full info Tel 021 552-6480 after 2pm and ask for Martin

SWAP ZX81 16K plus 17 Buses and grifter table nearly new for 16/48K Spectrum or pay £50 for 48K Spectrum Phone 021 557 5164 from 3-8pm Monday to Friday

WANTED non-working ZX81s. Workers considered as well if cheap Also non-working Spectrum or Nascom Tel 01 735 1682.

WANTED BBC B also additional equipment books software considered. London area will collect. 01-370 0718. Evenings 01-373 6354

WANTED Colour portable TV for use with computer Will pay £40-60 ono Tel Longfield 3530 after 6 00pm

SWAP 40 CHANNEL CB + aerial + power pack inc SWR for ZX printer £10 cash Naeem Lass (0563) 599578

TRS 40 Model B — tel Romford 46948 Steve Freedman

AQUERIS COMPUTER plus 40 Channel CB + Spiratone Home base Excellent condition To swap for any other computer Tel (0703) 440161 Jam Compeer

WANTED micro drive interface 1 RS 232 and quitrix daisy wheel printer for Spectrum Bolton (0204) 29813

WANTED BBC Micro £200 Will collect in Leeds Bradford Huddersfield area. Tel Brighouse (0484) 715578 (eves)

SWAP COMPUTER MAGS. £35 worth PCN PCW Swap Kempston Joystick or sell £10 00 the lot. Tel 01-637 9773 (evenings only)

WANTED back issues of Computer Gazette Nov 1983 Good price paid Tel 041 944 3128 after 5pm.

WANTED 2ND S/W Send list + SAE to Ted Ryan 15 Queens Square Eastwood, Nottingham NG16 3BJ Tel 0773 766011

SWAP 48K SPECTRUM + £75 of s/w – £30 cash for a newish CBM 64 Andrew after 4pm Tel Cheltenham 36652.

SWAP SPECTRUM progs, over 300 Send list to J P Kevorkian, 8, Rue des Boulangers (Zipcode) 75005 Paris, France

WANTED TRS80 16K keyboard or Video Genie. Tel evenings 0532 507346

SPECTRUM SOFTWARE for swap Write for details to Robin England, Church on the Way Churchill Road Thetford Norfolk. Or phone Thet. 3654

SWAP TEN ROLLS Alphacom printer paper for five rolls ZX printer paper or will sell ten rolls Alphacom printer paper £10 Phone Brian on Bolton 389448

SWAP RADIO control car with servos for Spectrum Currah speech printer and money Please ring after school hours. Ask for Neil on (0362) 66042.

DO YOU OWN a BBC B + 40 track disc drive and would like to swap games? If so please write to Paul Phillips 13 Mountain Road Conwy Gwynedd

SPECTRUM SOFTWARE, swap Hobbit for Valhalla Swap Flight Simulation or Jetpac for Oracle's Cave. Bear Bovver Fruit Bugaboo or Snowman. Tel 01-854 9961 evenings

For sale

ZX PRINTER + Valhalla Any offers Tel 01-390 5855 after 5pm

ORIC 48K complete with s/w and books 8 months guarantee £70 Tel 061 747 8347 (eves)

48K ORIC I with £180 of s/w + books inc Oric Forth Zorgons Revenge All £300 Sell for £120 Tel Oxford 53949

48K LYNX + s/w Highest offer secures Tel 01-881 0118 Richard Lamb

48K LYNX complete with Joystick interface assembler disassembler 7 s/w tapes and 3 manuals £250 Tel 0364 81458

48K LYNX 5 months old + necessary leads + Nugul users mags Over £40 of s/w inc. Collossal adventure + assembler Worth £450 Sell £370 ono or swap for BBC B Tel 01-228 8501 eves

48K LYNX 10 months old Hardly used £148 Tel Crowborough 4334 eves

COMPUTER Big Track £15 Good condition Tel Pedro 01-452 7545 after 5pm

SOFTWARE FOR SALE Inc Star Gate Secrets Music One Tand a Clown, Night Flight and Dietron Tel (0625) 522375

SUPER EXPANDER Cartridge £25 00 Gorgon II Chess eld gorth cartridges £5 00 each VIC tape computer eeue (1) £5 00 Tel 01 330 1766 eves

MICRO LINE-83 A printer £290 only 1 year old Bankrupt eeds (list price £600 00) 0249 76801

MEMOTECH 512 W H. Data Recorder 3 cassettes £350 Brand new £280 ono Tel 01 6*2 2306 eves David Beal

CAMBRIDGE INTELLIGENCE Joystick Sylearh (Spectrum) Only £25 inc p&p Richard Wright Lips 5683

SEIKOSHA GP 100A Mark II dot matrix printer Hardly used £165 Will deliver Tel York 480 109 eves.

48K ORIC old under g/tee with s/w inc Harmer Attack, Hopper + Ultra + many magazines. £750 ono. Tel 01-680 5966

LYNX 160 still boxed, unused with tapes + literature £390 Bingham 839850

SHARP MZ80K – cover + 10 games £300 ono Crystal Basic + Sharp Basic Tel G Bastig, Topcham 4868 eves

ORIC-1 48K for sale Perfect condition Only 8 months old with £120 worth of software (all originals) Also 2 program books total value £270 Only £125 ono Tel Oxford (0865) 57881

EPSON PARALLEL printer RX80 ono leads to BBC Micro and printer driver for view — for sale at only £180 Address 2 Hammond House Tiller Road London E14 Ask for Frank Poon

ORIC-1 48K plus 25 software titles value £200 including Ultra, Xenon Zorgon Bridge Hobbit Franklins Tomb Celestial Snowball Onc Munch half price £170 the lot. Tel Chertsey (09328) 60065

VIEW W PROC with printer driver Used once only In eng. and £50 ono Tel 01 529 8896

EPSON RX80 Matrix old printer parallel lead 1500 Fanfold sheets 5mths old Perfect condition £240 (Ray) Manchester 061 224 2658

TASMAN PARALLEL printer interface + software and manual Never used £30 Tel Hemel Hempstead (0442) 57080 after 6pm

PRESTEL MICRONET users - notified me on 0177856*3 Enterprise Computer) original Spectrum software for sale Assortment includes Vu-Calc Penetrator Superview Remmel's Revenge (Battleaxe) Meteor Storm Statistics. All around half retail price

LEARN TO SPELL the easy way with Pal Fred. A bargain at £3 Ideal for young children Send cheques PO to Monksoft, Highlands, Best Boys Park, Minchinhampton, Stroud, Glos. GL6 9JT

FOR SALE. Advance 86a, 16 and micro One month old Sell boxed IBM compatible with manual and detachable keyboard Sell for £390 ono Write to I Sabiu 84 Southfield Road Middlesbrough Cleveland, TS1 3ER

LYNX 96K home computer with manual m c manual 46 eeos demo tape Lynx computing code Adventure assembler and magazines. £180 ono (0785) 2266

FOR SALE. Kempston Joystick, as new £9 ono Tel Dunblane (0786) 822912

VECTREX COMPUTER game system own screen Minestorm Webwarp Narrod Berzerk, Cleansweep Scramble Armour Attack, Starship, Starhawk, cost £306 Purchased November Sell or swap any CGL M5 Hard or software (0726) 83501

SHARP MZ-80K sale cover 30% of programs and manual £240 Or swap for CMB 64 and tape and Tel 0925 56861

MODEM FOR SPECTRUM. Boxed complete with £25 Voucher for GPO jack socket and free membership to Micronet Connects your Spectrum to Prestel computer Lots of free games, etc £75 061 790 7082.

64K MEMOTECH MTX 512 as new in box c w Quickshot joystick Toads Draughts Kilopede etc etc only £300 inc no offers Phone Chris on Hunts (0480) 810830 evenings

TEXAS INSTRUMENTS 99 4A with Chess cartridge programming course books software only £70 or swap for 16K Spectrum or 48K Spectrum with cash difference Tel 061 224 8381

SHARP MZ700 complete with plotter printer cassette recorder built-in plus Pascal Zen Editor Ass Three Basic s and other software Will Deliver pending distance £400 ono Telephone Sheffield 471180 after 6.30pm

96K LYNX for sale including joystick interface joystick serial printer interface plus much software and books Bargain at £290 Ring Stafford (0785) 661745 after 5pm.

ZX PRINTER for sale Very good condition with five rolls of paper Best offer secures. Tel. (0473) 822284 (evenings)

GENIE COMPUTER with over £180 worth of software cost £600 sell for only £95 Also green monitor for Genie and other micros for only £50 Tel 001 447 8651

SPECTRUM KEMPSTON Joystick with interface New at Christmas, unwanted gift £19 software Ometron 48K £4 60 Tel 0483 39660

WALTERS MICROSYSTEMS PRINTER model WM 2000 and screen dump programme Unused Recommended for use with BBC Mood £350 ono. Phone 021 456 3637 evenings only

TRS-80 COMOPUTER, 16K, only 5 months old. Complete with two games and manuals, etc Cost??? £100 ono Tel 0474 56148 evenings only Ask for Ian

48K LYNX joystick interface joystick and serial printer pack plus software and books, still under guarantee Bargain at £290 ring Stafford (0785) 661745 after 5pm.

ORIC 1 French owner of Oric look for English correspondents for swap softwares and informations. Alain Ladmiral 40 Rue J-Jaures, 81130 Ris-Orangis, France

LYNX 48K Compatible cassette Niug membership Lynx computing book £45 software 20 months guarantee Hardly used Cost £370 yours for only £260 Ring Terry 01 223 0837

SOFTWARE for Sharp MZ80K A from £3-£4 Mainly adventure programs 01 455 6641 after 4.15pm

LIMITED NUMBER of unwanted verbatim 8 s d d disc £26-50 per pack of 10 Please telephone 0438 60537 (eves)

MEMOTECH MTX512 £275 Paul, Tel 01-457 1778 As new

DISC DRIVES current Cumana twin drive cased with P S U + lead for BBC micro Immaculate £285 Tel Watford 41861

ORIC 1 48K, as new with manual event and magazines plus £120 worth soft eves Boxed and in excellent condition Tel 061 427 6124 — £110 ono

LYNX SOFTWARE for sale Roberun Jumping John Space Trek Sultan's Maze all £3 75 each Power Blaster Moon Fall £5 00 each Ring Stafford (0785) 661745

ORIC 1 48K, eaus games worth £55 1 yr s Oric Owner Excellent condition £100 compatible lead recorder available if require Tel Harpenden 62564

SEIKOSHA G.P.80 printer paper for sale £7 per 1000 sheets + postage From Mr T Goswell 51 Westborough Drive Halifax West Yorkshire HX2 7QN

SEIKOSHA G.P 80 printer ribbons for sale £3 each From T Goswell 51 Westborough Drive Halifax West Yorkshire HX2 7QN

96K LYNX, cassette player books, magazines complete annotated Rom listing Genuine reluctant sale only £186 No offers Phone Luton (0582) 864030 anytime

TRS 80 software for sale — Scramble Robot Attack, Asteroids Missile Command Raaka-Tu Checkers, Watson In Memory Information, various utilities All in original condition Tel (05462) 3393

FULLER SOUNDBOX for ZX Spectrum £23 and Phone after 3pm on week days. Telephone 01 959 3768

ADVENTURE HELPLINE

Micro *Spectrum*
Adventure *Planet of Death*
Problem *How to move from lift control room lift and hanger*
Name: *M Bingham*
Address. *17 Catchpole Way Stanton Suffolk IB312BJ*

Micro *ZX Spectrum 48k*
Adventure: *Smugglers Cove (Quicksilva)*
Problem *How do you get past either the oak door or the cave in causing a barrier or the deep wide trench*
Name *Mr Philip Freeth*
Address: 34 *Budgers Bank Rd, Four Oaks Sutton Coldfield West Midlands B74 4EB*

Micro *Oric 1 48k*
Adventure: *Fantasy Quest IJK Software Ltd*
Problem. *Where do you find the 2nd sector of the Eye of the Morpheus and where do you put them once you hae got them all?*
Name *Owen Wright (age 12)*
Address: *11 Moorgate Crescent, Dronfield nr Sheffield Derbyshire S18rYF*

Micro *Vic 20*
Adventure *Mission Impossible*
Problem *How to clear door of tape recorder and difuse the time bomb without a bang!*
Name. *Scott Samways*
Address: *14b Millfield Creekmoor Poole, Dorset BH177XG*

Micro *Spectrum*
Adventure: *The hobbit*
Problem: *How to progress from levelled elvish clearing*
Name *N Hammond*
Address. *74 Meadowside, Cambridge Park, Twickenham TW1 2JQ*

Diary

Event	Venue	Dates	Admission	Organisers
5th International Commodore Computer Show	Novotel Hammersmith London	June 7-8 10 00am-6 00pm June 9 9 00am-5 00pm	£2 00 adults £1 00 children £3 00 family ecual	Granard Communications 4 Belmaes St, London SW1 01-930 6711
The Computer Fair	Hall D Earl's Court London	June 14 10 00am-6 00pm (trade and press only) June 15-16 10 00am-6 00pm June 17 10.00am-5.00pm	£3.00 adult £2.00 children & OAPs	Reed Exhibitions, Surrey House Throwley Way Sutton Surrey 01-643 8040
Micro Trade 84 (Trade only)	Barbican London	July 4-5 10.00am-6.00pm	Free	Montbuild Ltd 11 Manchester Sq, London W1 01-486 1951
Educational Computing and Software Fair	John Taylor Teachers Centre Leeds	June 15 2.30pm-7.30pm June 16 9.30am-7 30pm	Free	Mr G Creighton John Taylor Teachers Centre 0532 782181

and tacks — earn money for each square covered with a bonus for covering rival carpet-fitters

As a game I found it so-so What's really bizarre is that technically the game is about a year out of date — all character square graphics with no animation More surprising still the blurb claims it's written in machine code — my bet is that it's compiled Basic

In fact if it wasn't for the colour it would actually be a pretty average ZX81 game Terminal have produced some good games in the past and like those this comes in a nicely designed colour cassette box that makes the game seem a lot slicker than it is I'm a bit surprised Terminal put this one out

Program	*Carpet Capers*
Price	*£5 95*
Micro	*Spectrum*
Supplier	*Terminal Software Derby House Derby Street Bury BL9 0NW*

LADDERED

Castle Assault is an amiable dodge everything game from MRM software Using a series of ladders you have to climb up to the top of a castle thereby to grab a pot of gold

Your journey up the castle involves moving platforms, falling rocks, various insects including crabs, snakes, lobsters, spiders etc and worst of all deadly flying ducks — all of which can bite, crush, sting or bash you and thereby thwart your task

A variety of fruits improve the situation somewhat earning you bonus points as you battle your way to the top The graphics are excellent as is the music and at £5 70 it's very good value

Program	*Castle Assault*
Price	*£5 70*
Micro	*BBC (OS1 2)*
Supplier	*MRM Software 17 Cross Coates Road Grimsby South Humberside*

WRITE ON

Tasword has gained an enviable reputation as not only the best word processor for the Spectrum but as a word processor better than many available for other superficially more word processing orientated, machines

The success of the program has brought support from its parent company in the form of a special centronics interface driven by software contained in the program and Microdrive compatability Support continues now with a new program *Tasprint* which can be merged with the original *Tasword*

The program is a font selector which will drive any bit image printer to produce a variety of interesting type faces, from the futuristic Data-Run to the more elegant Palace script

It's not the first of its type, but the compatability with Tasword makes this program especially useful and can improve the range of styles usable in letters etc, no end

Program	*Tasprint*
Price	*£9 90*
Micro	*Spectrum*
Supplier	*Tasman Software 17 Hartley Crescent Leeds LS6 2LL*

POT OF GOLD

Dragon Data is a strange company — it releases some pretty awful programs in large cassette boxes and with much trumpeting, yet something like *Shenanigans* slips out unnoticed

Speaking purely personally, I think *Shenanigans* is probably the best adventure I've ever seen on the machine — it should even make a few Spectrum owners jealous.

The object of this graphic adventure is to discover the pot of gold at the end of the rainbow As most people know using effective hi res on the Dragon means having pictures that are in black and white — whilst this is true of *Shenanigans* the limitation has been turned into an advantage, using shading techniques and careful design the black and white gives the programs a sense of atmosphere that garish colours may well have lacked

The actual text input is straightforward verb noun but the clues and conundrums are as imaginative and clever as you'll find anywhere As to help, all I can suggest is that you put some clothes on and avoid muggers

Program	*Shenanigans*
Price	*£7 95*
Micro	*Dragon 32*
Supplier	*Dragon Data Kenfig Industrial Estate Margam Port Talbot West Glamorgan SA13 2PE*

SPEEDY

McVid is a machine code graphics utility for both the BBC and the Electron What you get is essentially a mixture of an artist s designer type program and a sprite generator/mover

The various functions have been designed for both speed and memory conservation — screen scrolling is very fast and each shape line is defined in only three bytes

The program doesn't specify the operating system so should be fully compatable It comes with a manual and a commented source listing intended to enable easy modification of the routines for specific purposes

Program	*McVid*
Price	*£14 95*
Micro	*BBC/Electron*
Supplier	*Pro Supply 4 Beech Court Pocklington York Y04 2NE*

HARD WORK

A weird one this *The Golden Quest* is a program which consists of a series of clues to the location of a special token which wins whoever locates it £1,000 plus £1 for every cassette sold

If you like it s a bit like Pimania but without the adventure and with more varied clues From a brief glance it looks as though you'll have your work cut out with this one — supply yourself with a variety of maps and reference works if you are seriously interested in cracking it

The usual technical criteria are pretty irrelevant — just as well really as it is in slow Basic and if you aren t thinking about the conundrums it s very boring Still it's a good idea

Program	*The Golden Quest*
Price	*£7 50*
Micro	*Spectrum*
Supplier	*Printout 27 St Michael s Street Caldmore Walsall West Midlands*

New Releases is designed to let people know what software is coming on to the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases Popular Computing Weekly 12-13 Little Newport Street WC2R 3LD

New Releases

ALL AT SEA

Sea Adventure is an adventure game for the BBC which takes in ghost ships storms, strange islands etc, etc. It also has, somewhat of a rarity among BBC adventures where memory is short, graphics, which are simple but quite effective

You have to admire Virgin's cheek as the cover blurb says proudly An added bonus — is the one key instruction method All instructions are given by pressing just one key No more typing degrees required to play this game!" — this is doublethink gone mad

Program	*Sea Adventure*
Price	*£7 95*
Micro	*BBC B*
Supplier	*Virgin Games 61/63 Portobello Road London W11 3DD*

GOTHIC

Revelation is an arcade game so gothic and creepy I can see a few adventure freaks giving their typing fingers a rest and grabbing a joystick

In the caverns of hell astride a sacred Eagle you battle off monstrous hordes of dragons, demons, imps and serpents These get in your way as you destroy the dark lord's various towers (these turn into pentacles for some reason)

If you destroy all the towers in one screen you can go on to the next. Obviously what we have here is pretty much your standard 'dodge everything and if possible kill it' game, but the music and graphics are excellent and it's much more addictive than most.

Program	*Revelation*
Price	*£7 95*
Micro	*Commodore 64*
Supplier	*Softek International Softek House Tanqual House Blackheath London SE3*

ARTHURIAN

Latest game from Ocean is *Cavelon* released almost simultaneously on the Commodore 64 and the Spectrum It's a game with vaguely Arthurian legend overtones since you are trying to rescue the (poor foolish woman) imprisoned Guinevere

This involves battling your way through half a dozen mazes past various deadly knights who run at you and hurl what look like fireballs as you try to find the various bits of the door thereby gaining an exit to the next level

You can defend yourself either by running away (always a good policy I find) or by finding one of the wandering Excaliburs which give you some temporary immunity from danger

If you make it to the final level you rescue Guinevere and the two of you fly off on your horse which turns into Pegasus (shome mishtake are I think) and zooms off into the sunset with the two of you on its back Afterwards I expect Guin gets you a nice meal and fixes your torn clothes while you go out for a knight with the lads

The graphics are excellent and although in a way this is really only a maze type game in disguise it's a lot of fun to play

Program	*Cavelon*
Price	*£6.90*
Micro	*Commodore 64*
Supplier	*Ocean Software 6 Central Street Manchester M2 5NS*

CARPET BEATER

Carpet Capers is a rather astonishing release from Terminal Software for the 48K Spectrum The general idea of the game is of the 'complicated arcade' school so much in vogue at the moment You have to lay carpets which involves collecting hammers cutters

Pick of the week

IN THE MIDNIGHT HOUR

You will doubtless have heard much about the *Lords of Midnight* from Beyond Software — the game is finally available

It's a substantial program and as such is going to need a fuller review than is possible here, but it is possible to pick out a number of main features

Although the graphics are static, unlike say, *Valhalla* they are a definite step beyond the illustrations' of something like *The Hobbit*. This is because of something Beyond call Landscaping which is basically a way of giving a true 3D logic to movement through the land of Midnight For example, if you go north from somewhere and then look south from the new location you will see where you've just been although reversed (if you see what I mean)

Midnight is vaguely a wargame and vaguely an adventure and *within* it it is possible to win the game in two different ways either as an adventure (guiding Morkin to the Tower of Doom) or as a strategy (moving enough forces north to the Plains of Despair to attack the Citadel of Ushgarak) Either way there are a vast number of factors to be considered at any stage and a wide variety of different options — despite the single keyword entry

There are 32 characters you may be able to control (it depends if they decide to join with you), you see the viewpoint of each individual character separately — you look through each one's eyes and try to correlate the overall movement.

The computer controls the baddies who are collectively known as Doomdark — Doomdark move by night and a description of the battles that take place fills the screen (the prose is genuinely purple)

To what extent *Lords of Midnight* is a genuine adventure remains to be seen, its claims as a strategy game are far more obvious and as such it must be one of the most sophisticated ever designed Whatever you call it, it's great fun to play and technically brilliant — and that would seem as good a place to start as any

Program	*The Lords of Midnight*
Price	*£9 99*
Micro	*Spectrum*
Supplier	*Beyond Software Durrant House 8 Herbal Hill London EC1R 5EJ*



Top 10

Atari
1 (8) Solo Flight (English)
2 ( ) Captain Sticky's Gold (English)†
3 (3) Rally Speedway (Adventure International)*
4 ( ) Blinky (Cosmi)
5 (1) Zaxxon (Datasoft)
6 (9) O'Riley's Mine (Datasoft)
7 (6) Saga 5 (Adventure International)‡
8 ( ) Caverns of Kafka (Cosmi)
9 (2) Warlock (Calisto)†
10 (4) Avenger 2 (English)
* Cartridge † 32K Cassette ‡ 48K Cassette
(Figures compiled by Calisto Computers 021 632 6458

BBC
1 (2) Blagger (Alligata)
2 (1) Aviator (Acornsoft)
3 ( ) Snapper (Visions)
4 (3) Fortress (Pixel)
5 ( ) Twin Kingdom Valley (Bug Byte)
6 (7) Snyne and Spiders (Software Invasion)
7 ( ) Liberator (Gemini)
8 ( ) Freefall (Acornsoft)
9 ( ) 3D Munchy (MRM)
10 (8) French (Acornsoft)
All Model B
(Figures compiled by Micro Management 0473 59181

Vic 20
1 (1) Duck Shoot — Master Tronics
2 (6) Tank Commander — Thorn EMI
3 (2) Chariot Alert — Micro Antics
4 (3) Computer War — Thorn EMI
5 (7) Crazy Kong — Interceptor Micro
6 (–) Gridrunner — Llamasoft
7 (–) Mutant Herd — Thorn EMI
8 (–) Jet Pac — Ultimate
9 (–) Carrier Attack — Rabbit
10 (–) Traxx — Llamasoft
(Figures compiled by Boots/Websters

Commodore 64
1 (10) Black Hawk — Thorn EMI
2 (–) Space Pilot — Anirog
3 (–) Manic Miner — Software Projects
4 (–) Arena 3000 — Microdeal
5 (–) Ugh! — Softek
6 (1) BMX Racers — Master Tronics
7 (–) City Attack — K Tel
8 (–) Cosmic Convoy — Taskset
9 (–) Flown Tazd — AudioGenic
10 (8) Space Walk — Master Tronics
(Figures compiled by Boots/Websters)

Dragon 32
1 (4) Kriegspiel — Beyond
2 (3) Dragon Chess — Oasis Software
3 (–) Eightball — Microdeal
4 (1) Cuthbert in Space — Microdeal
5 (–) Up Periscope — Beyond
6 (–) Mystery of the Java Star — Shards
7 (8) Skramble — Microdeal
8 (–) Cuthbert in the Jungle — Microdeal
9 (9) Sprite Magic — Knight
10 (–) Chocolate Factory — Mirvis
(–) North Sea Oil — Shards
Two titles tied for 10th position
(Figures compiled by Boots/Websters)

ZX81
1 (10) Krypton Ordeal — Novus
2 (–) Walk the Plank — Novus
3 (10) Planet Raiser — Novus
4 (2) Krazy Kong — PSS
5 (3) Flight Simulation — Psion
6 (–) Alien Rain — CRL
7 (4) Chess 1K — Psion*
8 (5) Rescue — Quicksilva
9 (6) Space Raiders — Psion
10 (7) Scramble — Quicksilva
All 16K except where asterisked *1K
(Figures compiled by Shop/Websters)

Spectrum*
1 (1) Jet Set Willy (Software Projects)
2 (3) Chequered Flag (Psion)
3 (4) Blue Thunder (Foundry Systems)
4 (–) Fred (Quicksilva)
5 (–) Hunchback (Ocean)
6 (–) Alchemist (Imagine)
7 (6) Fighter Pilot (Digital Integration)
8 (–) Flight Simulation (Psion)
9 (10) Atic Atac (Ultimate)
10 ( ) Lunar Jetman (Ultimate)
*All 48K
(Figures compiled by W H Smith and Son London

Books
1 (4) Commodore 64 Programmers Reference Guide Commodore — Prisman
2 (1) Sinclair QL Companion. Allen — Prisman
3 (2) Step by Step Programming Spectrum Book 2. Graham — Dorling Kindersley
4 (3) 20 Programs for Commodore 64. Sinclair et al — Pan
5 (7) Guide to playing the Hobbit. Elson — Melbourne House
6 (5) Very Basic: Basic Spectrum. Ellershaw and Schofield — Century
7 (6) Spectrum Sound and Graphics. Money — Granada
8 (–) Teach Yourself Computer Programming on Commodore 64. Carter & Huzan — Hodder
9 (–) Choosing and Using a Micro. Rachner & Kahn — Fernaha
10 (–) Micros are Fun. Gray — Ladybird
(figures compiled by Bluerose)

Book Ends

BIGGEST

Beginner's Basic is almost certainly the biggest book on this most prevalent of book computing titles and it may also be one of the best.

The book is not machine specific — this is usually a bad sign since general books tend to lack much practical value — however the coverage is so thorough it should be useful whatever machine you have bought.

Book *Beginners' Basic*
Price *£9 95*
Micro *General*
Supplier *WHS Distributors, St John's House, East Street, Leicester LE1 6NE*

PRACTICAL

Practical Uses for the Microcomputer in the Home is a collection of 14 programs that you might conceivably find a use for — all are written to Microsoft Basic standard with some advice on converting them in the back of the book.

Whilst you might have found any of the programs in this or other magazines it might be useful to have them collected together. Titles include Wallpaper calculator, Shopping list, Calendar, Bank Statements, Car file, V A T etc.

Book *Practical Uses for the Microcomputer in the Home*
Price *£4 95*
Micro *General*
Supplier *Interface Publications, 9-11 Kensington High Street, London W8 5NP*

EXPERIENCED

Programming Z80 Assembly Language is a useful book for the experienced programmer working with the Z80 on more than one machine.

The book deals with all assembly instructions including block transfer and search, rotate and parity, etc. Not for beginners in machine code though.

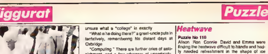
Book *Programming Z80 Assembly Language*
Price *£4 95*
Micro *General (Z80 based)*
Supplier *Macmillan Press, Houndmills, Basingstoke, Hampshire RG21 2XS*

This Week

Program	Type	Micro	Price	Supplier
Enigma	S	BBC	£8 95	Small Enterprises
Galaxy's Edge	Ad	BBC	£7 45	Magic
Nifty Lifty	Arc	BBC	£8.95	Visions
1984	S	BBC B	£6.50	Incentive
Bridges	Ed	BBC B	£9.95	Fernleaf
Fletcher's Castle	Ed	BBC B	£9.95	Fernleaf
Football Manager	S	BBC B	£7.95	Addictive
Pengi	Arc	BBC B	£9.95	Visions
Product Patterns	Ed	BBC B	£9 95	Fernleaf
The Perfume Hunter	Ed	BBC B	£9 95	Fernleaf
Treasure	Ed	BBC B	£9 95	Fernleaf
Bombard	Arc	CGL M5	£9 95	CGL
Devil Bird	Arc	CGL M5	£5 95	CGL
Intrigue	Arc	CGL M5	£9 95	CGL
Lander/Squash/Raider	Arc	CGL M5	£9.95	CGL
Arena 3000	Arc	Commodore 64	£9 50	Microdeal
Beach Head	Arc	Commodore 64	£9 95	US Gold
Cuthbert in the Jungle	Arc	Commodore 64	£8 95	Microdeal
Encounter	Arc	Commodore 64	£9 95	Hi Tech
My First Adventure	Ad	Commodore 64	£5 95	Jolly Rogers
Mr Mephisto	Arc	Commodore 64	£9.95	Euro Byte
Pengon	Arc	Commodore 64	£8.95	Microdeal
The Incredible Hulk	Ad	Commodore 64	£9 95	Adventure International
The Chocolate Factory	S	Dragon 32	£6.95	Mirvis
Account Book	Ut	Oric	£12.50	Softbacks
Calpac Learning Series	Ed	Spectrum	£9 50	Calpac
Calpac Learning Series	Ed	Spectrum	£6 50	Calpac
Calpac Learning Series	Ed	Spectrum	£9.50	Calpac
Carlo the Clown	Ed	Spectrum	£8.50	Calpac
Death Chess 5000	S	Spectrum	£8.95	Artic
Household Utility	Ut	Spectrum	£7 50	Microdot
How Machines Work	Ed	Spectrum	£6 95	Calpac
Mr Mephisto	Arc	Spectrum	£6 95	Euro Byte
Phantom	Ut	Spectrum	£4.95	Microdot
Relocatable Lprint/List	Ut	Spectrum	£9 95	Microdot
Sabre Wulf	Arc	Spectrum	£9 95	Ultimate
The Incredible Hulk	Ad	Spectrum	£9.95	Adventure International
The Width of the World	Ad	Spectrum	£9 95	Mosaic
World Cup	S	Spectrum	£6.95	Artic

Key Ad — adventure Arc — arcade Ed — education/ S — strategy simulation Ut — utility

This Week is a new section that covers all the new software coming on to the home micro market each week. All suppliers should send details of their new programs to This Week, Popular Computing Weekly, 12-13 Little Newport Street, London WC2R 3LD



Ziggurat



Money talk

It is Christmas or some other occasion when relatives descend from all over the land determined to enjoy the festive spirit. The turkey has been consumed no match for the vicious teeth carefully crafted by the NHS. The pudding has suffered a similar fate and the table resembles a battlefield strewn with the discarded corpses of paper hats bottles and cracker ends.

The alcohol is flowing freely and gossip is passing back and forth. The seemingly endless list of births/deaths/marriages/scandal which has accumulated since the last time the tribe met is trotted out. Soon all has been discussed tutted over, and dismissed. There is a lull in the conversation and attention is focussed on the youngest of the brood.

One great-aunt leans ponderously forward blissfully unaware of the havoc she has caused behind her with an uncle's drink.

"How is little Willie getting on these days?" she inquires waving a casual hand in the direction of little Willie who is sat glowering at his relatives and trying to avoid the fussing of his ancient aunts. His mind is on computers and gaming as ever — an escape from all this.

"William is at college," comes the reply from proud, beaming parents. There are exclamations of surprise and congratulations from relatives unsure what a "college" is exactly.

"What is he doing there?" a great-uncle puts in tentatively, remembering his distant days at Oxbridge.

"Computing." There are further cries of astonishment and a few whispers of uncertainty.

"Computers eh, computers?" A wise old uncle puts in. "There's money in that."

"Money in that", "Ay money." A general nodding of heads — the thought of money seems to comfort them.

One aunt pauses and scratches her head. "What is a computer exactly?" she inquires innocently "a sort of calculator?"

"Sort of Aunty." Little Willie replies. "But it is *much* more complex." There, he thinks that should put her off.

"How's that, dear?" she presses on, undeterred.

Willie sighs and looks pleadingly at his mother. She glares and gives him one of her Talk-to-your-Great-Aunt-Betty and-be polite-we only-see-her-once-a-year stares. Willie sighs and soldiers on.

"Well Aunty, it's got a little device called a microprocessor, then there is a keyboard, a display and the storage medium ..."

Great Aunt Betty leans forward again, narrowly missing Cousin Clive's glass this time. "I'm not sure I understand all those terms," she interrupts.

"Well, let's go through them one at a time — what first?"

"What's a ... what's a keyboard?"

Just then Willie's interrogation is disrupted by Cousin Don choking on that "last piece of Christmas pudding he just had to have". Relatives leap from all over the room to administer aid, and in the confusion Willie steals away. Now, he can get on with his new program in peace.

Taking computing as a career is fun but explanations of what it is you exactly do can be a tribulation especially when you come up against relatives. However, there are compensations so next time you are stuck talking to that long-lost uncle who is convinced that a transistor is used to pick up the home service, and a computer is someone who goes to work on the train comfort yourself with the constant comment "Computing? Ay there's money in that!"

Mike Lewis

Puzzle

Heatwave

Puzzle No 110

Alison Ron Connie David and Emma were finding the heatwave difficult to handle and badly needed refreshment in the shape of ice creams.

"How much will that cost me," I asked emptying out my wordly wealth from my pocket — which only turned out to be five each of pennies two pences five pences, ten-pences and twenty-pences.

They told me the cost of the five ice-creams and being smart I said "Tell me the number of different ways in which you can make the total cost with these coins using each type of coin at least once, and you can have the cash."

The thirsty five — reluctantly went away with pencil and paper and presently announced "Twenty-eight" — the correct answer.

If the ice-creams were all the same can you say how much each ice-cream cost?

Solution to Puzzle No 105

The program works out the surface areas of cuboids in ascending order to magnitude and checks to see if their area could represent a rectangle one and a half times as high as it is wide. There are many sets of answers, but it is the smallest that is required.

```
10 LET D=2 20 FOR A=1 TO 20 30 IF A=D THEN GOTO 180 40 FOR B=1 TO 20 50 IF A=B OR B=D THEN GOTO 120 60 FOR C=1 TO 20 70 IF C=B OR C=A OR C=D THEN GOTO 120 80 LET F=3*D*D 90 LET R=4*(A*B+B*C+A*C) 100 IF R<>F THEN GOTO 120 110 IF R=F THEN PRINT "Rostrum" A "x" B "x" C "feet" "Flat" D "x", 3*D/2, "feet" 120 NEXT C 130 NEXT B 160 NEXT A 160 LET D=D+2 180 GOTO 20
```

The rostrum measures either 1 × 3 × 18 feet or 3 × 4 × 9 feet and the flat measures 10 × 15 feet — each having a surface area of 150 square feet.

Winner of Puzzle No 105

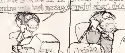
The winner is Andrew McFadyean, Bradford Street, Birstall, Batley W Yorks who receives £10

Rules

The closing date for entries to Puzzle No 110 is June 22.



The Hackers






AUTOMATA CCCP LTD.
PRESENTS:
WE LIKE THE BACK PAGE TO BE RED ALL OVER, SO THIS WEEK, WE'RE MAKING SURE IT IS! THE FIRST EPISODE OF THIS MINI-SERIAL OPENS WITH THE PI PHONE RINGING
A STUNNING CEREAL IN 2 PARTS!
DING-A-FLIPPIN'-LING. GOD, IT'S SO DULL BEING A PHONE
WHO ?
OH. WHAT? OKAY, I'LL BE RIGHT OVER!
WHO WAS IT? WHO WAS IT?
I CAN'T TELL YOU! BUT IF I'M REQUIRED, I'LL BE AT 10 DRAWING STREET!
WELL! ANYONE WOULD THINK I WAS NOSEY!
THE PI-MINISTER'S OFFICE
PIMAN, I HAVE ASKED YOU HERE FOR A VERY SPECIAL REASON
WOT?
WERE WORRIED ABOUT RUSSIA PULLING OUT OF THE OLYMPICS – WE FEEL IT ISN'T QUITE CRICKET
HUM DIDN'T KNOW THEY HAD CRICKET IN THE OLYMPICS
DON'T BE FACETIOUS, PORKY! I'M SENDING YOU OVER TO SOFTEN THEM UP SO'S THEY'LL RECONSIDER
BUT I DON'T KNOW ANYTHING ABOUT PROTOCOL, PI MINISTER!
JUST LOOK CUTE, AND MELT THEIR HEARTS. I'VE ASSIGNED A MAN TO HELP YOU THROUGH ANY DIPLOMATIC PROBLEMS – NOW GET OUT!
PILAND STAR
PIMAN TO SOFT-SOAP THE RUSSIANS
OLYMPIC GAMES APPEAL IN MOSCOW AFTER SPONSORED JOG TO AIRPORT
YOUR CONTACT WILL MEET YOU AT THE AIRPORT, WILL HE?
YEAH! I HOPE MY SPONSORS ARE THERE TOO
OH – THE GLASS COOKING-DISH PEOPLE!
GLASS COOKING DISH?!!
I THOUGHT IT WAS THE WRONG SHAPE SEE YOU LATER!
I WONDER WHO THIS DIPLOMAT BLOKE IS THAT'S GOING WITH ME?
THAT MUST BE HIM – IT LOOKS LIKE – NO... IT CAN'T BE
IT IS.. RASTAPIMAN!!
I DIDN'T TINK YOU'D KNOW ME TROO DIS FUNGUS!
HOW LONG HAVE YOU BEEN WORKING FOR THE FOREIGN OFFICE, RASTAPIMAN?
LASH WEEK, MAN! I ANSA DIS AD IN DE NOOS PAPER!
SUDDENLY, I'M NOT CRAZY ABOUT THIS TRIP!
AH FILL LIKE FATHER CHRISHMASH IN AH NEGAHTIVE
LOOK – THAT MUST BE OUR CAR! C'MON!
GREETINGS COMRADE PIMAN – I AM COMRADE GIRAMOFF, YOUR DRIVER – I'M AFRAID THE USUAL LIMOUSINE IS AT THE CLEANERS
ALL THE SAME TME, CUDDLES!
ER – WHY ALL THE PERISHABLES, NINOTCHKA?
I LIKE TO KEEP MY LADA WELL-STOCKED!
WILL OUR PINK HERO SOFTEN THE RUSSIANS, OR WILL HE SEE RED? PINE DOUBT NEXT WEEK!